

# The Mining Journal

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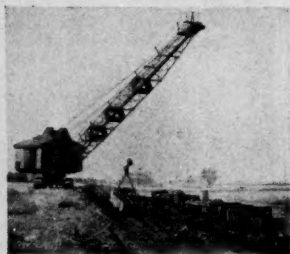
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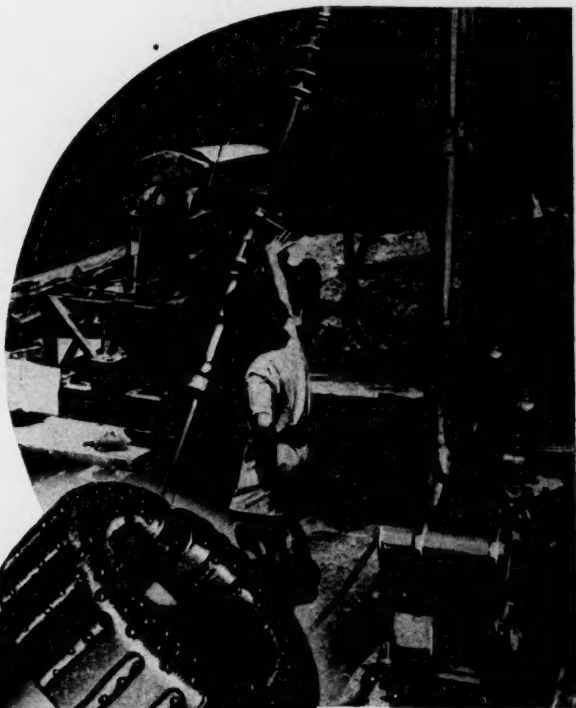
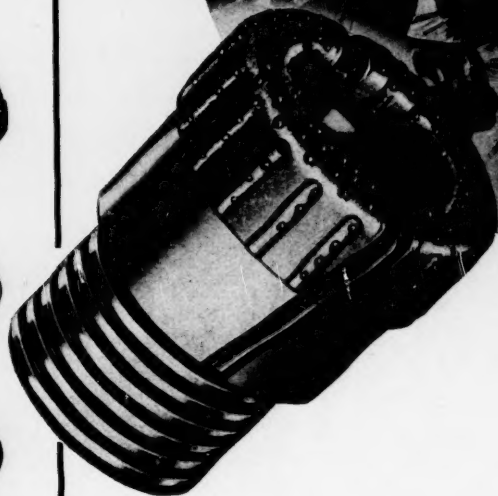
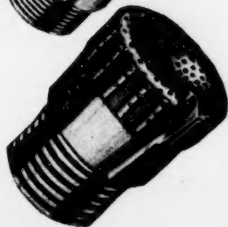
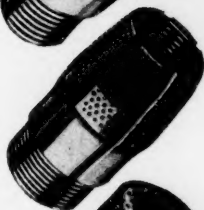
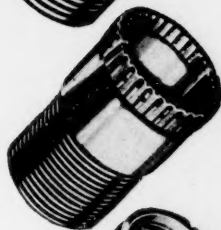
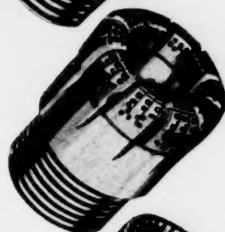
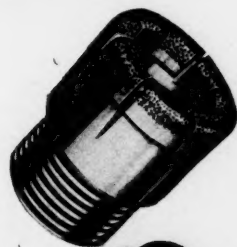
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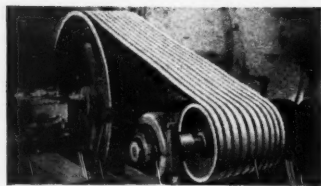


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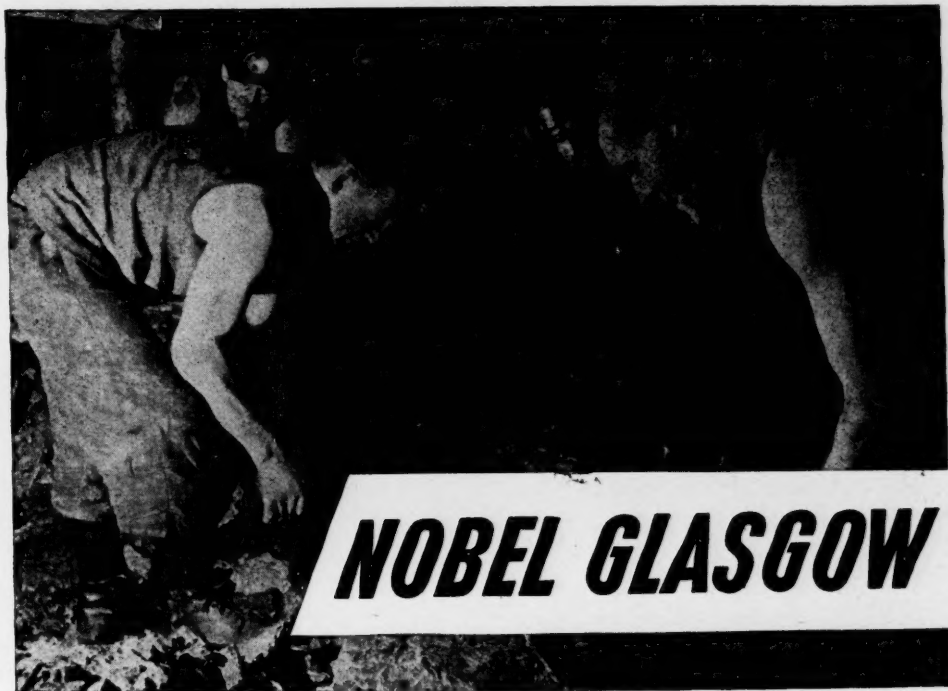
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## THIS WEEK'S FEATURES

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## NOTES AND COMMENTS

### The Iron Ore Problem

During the war period, when our overseas supply lines were constantly menaced by Hitler's U-boats, British iron and steel plants very largely subsisted on a "diet" of native ironstone. In 1942, raising of home ore reached the peak figure of 20,000,000 tons, whereas in 1950 consumption of home ores dropped to about 13,750,000 tons.

It is not surprising that these facts have engaged the attention of the British Iron & Steel Corporation, whose responsibilities now embrace the provision of the whole of the foreign ores consumed in the British blast furnaces. They are paying wildly inflated freight rates for ore charters and even then have found it impossible to obtain sufficient material to keep the iron and steel plants adequately supplied. Under such circumstances, it was natural that, as described in detail in an article entitled "Iron Ore Supplies for Steel Production" which appeared in the April 27, 1951, issue of *The Mining Journal*, they should explore the possibilities of increasing output of ore from home sources.

The bulk of the supplies of native ore are now obtained from the extensive seam which stretches from Oxfordshire and Northamptonshire to the coast of Lincolnshire, and, according to a Steel Corporation spokesman, this authority is now exploring the possibility of re-organizing the mining operations in this area. Apparently a merging of the various companies engaged in the exploitation of these extensive mineral deposits is under examination, and it may well be that considerable expansion of production will ultimately be attainable. Technical methods are not incapable of improvement, but the main problem is the recruitment of more labour with which is allied the question of housing.

Much of the ore has hitherto been obtained from open-cast working, but in some of the operational areas this has now been employed to the limit of its depth and underground mining, mainly by drift methods which is now more general, involves increased labour costs.

Extension of mining operations in this area cannot in any event yield quick results. It can only be a long-term project; not of course to be neglected on that account. But since it must at best take some years to yield any substantial increase in production, it does not absolve the Corporation from effective action to accelerate the shipment of ore from available sources of supply in Europe and Africa.

### I.L.O. Recommendations to Raise World Coal Output

The fourth biennial session of the International Labour Organisation's Coal Mines Committee, which was held at Geneva from May 7 to May 19, has now published its recommendations for increasing productivity in the world's coal industry.

Firstly, it recommended that mine operators should continue to modernize mining methods. This recommendation arose from the suggestion put forward in a survey on world productivity in coal mines prepared as a basis for discussion at the fourth biennial session. In the survey the I.L.O. experts warned that new methods and equipment should not be introduced without enlisting the support of the workers as results had shown that it was virtually impossible to apply any system efficiently without their agreement. In this connection the survey pointed out that the introduction of new equipment or systems cannot be divorced from the question of full employment, and the need to make long term arrangements to cover the effects of the mechanization of the labour force and so reduce to a minimum, or even obviate completely, the repercussions on the countries' social structures of the increased productivity in the industry.

The second recommendation that workers should contribute towards the successful introduction of new methods and equipment would, then, imply the closest agreement beforehand with the workers and their unions prior to the adoption of modernization programmes to increase productivity.

Finally, the committee recommended that governments should facilitate modernization by all appropriate measures, "and should keep closely in touch with technical developments in order that existing regulations may be relaxed, especially for the carrying out of experiments without in any way weakening the paramount consideration of safety." The question of safety had been discussed in the survey and it was found that good working conditions as a means of increasing productivity are "more important in mining than in any other industry, because a miner's work was particularly trying and was carried out under unusually difficult circumstances."

The Committee declared that employees should be awarded "a just share of the benefits of increased productivity, the measure of which to be determined in accordance with the practice in each country on this question." The survey stated that trade unions in all countries were found

to be willing to co-operate in raising output when given a share of the resulting benefits. The degree of co-operation obtained was particularly good in the United States where the high wage policy is one of the principal reasons for the continually increasing productivity.

In approving the productivity programme, the Committee said that a policy of raising output should be adopted in all coal producing countries in order to raise the efficiency of the industry, to further the development of all economic activities and to improve the welfare and living conditions of all miners and of the people generally. These results could only be achieved through the combined efforts of mine operators, of all mine workers and of governments. To bring about this desired end the Committee said that it would be essential to develop systems of joint employer-worker consultation. It therefore suggested that the I.L.O. carry out a study of these systems and undertake a number of other studies on problems relating to productivity.

#### **E.C.E. Reviews Europe's Economic Progress**

The three major problems of Europe's economy—raw materials, inflation and rearmament—and the way they react upon each other are examined in a lucid manner in the *Economic Survey of Europe in 1950* just published in Geneva by the United Nations Economic Commission for Europe from which extracts are given below, with particular reference to raw materials.

The *Survey* states that the fifth post-war year was one of continued and, in some respects, unexpected progress in European production. Compared with 1949, industrial output increased by a further 13 per cent, largely as a result of increased productivity. Most countries continued to devote a much greater share of their resources to the expansion of their productive capacities than before the war.

The *Survey* emphasizes that a substantial increase in raw materials production—which has not, so far, kept in step with the expansion of industrial production—will be required to support further increases and even to maintain the existing level. Additional demand, particularly for the U.S. stockpiling programme, has resulted in a serious disruption of the price structure, and in price divergencies for individual commodities which do not correspond to their relative scarcities. These abrupt changes in the price structure have brought about changes in the international income distribution, especially between exporters of raw materials and of manufactured goods, respectively. A marked deterioration in the terms of trade, both of Europe as a whole, and of the U.S., has been the outcome of these price changes.

On the problem of inflation, the authors observe that the inflationary situation has already developed to such an extent that counter measures taken now are likely to prove too late. Further inflation seems inevitable, even if the increase in raw material prices does not continue. Co-operation of primary producers could hardly be expected unless such schemes were accompanied by long-term policies to ensure stability in prices and income.

Readers are not left in any doubt about the inflationary threat in the U.S., and the excess of money demand in 1951 (assuming that the tax increases proposed by the Administration are speedily adopted) is estimated at about \$13 billion. This would tend to be expressed in further increases in domestic and export prices. The fact is stressed that high U.S. export prices (though matched by still higher prices for U.S. imports) must transmit themselves into the general price level of other countries.

Dealing with the shortage of basic materials, the *Survey* states that prospective shortages embrace both materials in which Europe is largely self-sufficient and

those imported from overseas. European output of the former is expanding, but too slowly in relation to demand. Production of most of the other materials in the world as a whole is also expanding, but the rate of increase in the U.S. demand is so large that supplies available for Europe may actually fall. The rapid expansion of U.S. economy, together with that country's strong balance of payment position, has led Europe to import less, or export more, of many basic raw materials. This shortage is, in fact, likely to prevent Europe from achieving this year an otherwise possible 13 per cent increase over the 1950 level of industrial output.

In connection with the greatly increased share of the U.S. in world consumption of all materials, the warning is given that "while Europe maintains a steady rate of industrial consumption, there will always be a strain on world supplies of industrial materials whenever an American boom is superimposed."

However, it is appropriate to point out that the reverse applies to an even more marked extent in case of a recession in the U.S.A., resulting in a reduction in raw material movements and prices, and in much lower U.S. imports of manufactured goods.

No words are minced with regard to Europe's own responsibility for the fact that, compared to pre-war, output of all basic materials has risen substantially less than industrial production and that in some cases, e.g., coal, iron ore and sulphur, production has fallen considerably.

To increase adequately production of basic materials changed policies are called for. Greater investment is needed in both British and German coal mines and their present antiquated wage systems should be better designed from the point of view of incentives. Miners' working conditions relative to other occupations might be further improved. In iron ore mining the Lorraine fields require mechanization and houses for new workers. Certain prices, e.g., for European scrap and for Ruhr and British coal might well be raised to encourage increased production and to achieve economies in unessential uses. Advantages should also accrue through relaxing discrimination in favour of domestic users.

On non-ferrous metals, the *Survey* states that world production other than aluminium in 1951 is unlikely to rise by more than 5-7 per cent above 1950 and there is need to remove uncertainty about the continuity of demand, if primary production is to be adequately developed. European countries should take a more active interest in the development of new sources of supply of many metals.

Two factors outside the control of European countries will determine the Continent's share of supplies of imported materials; first, the speed of U.S. armaments production, and the extent to which other production is cut; secondly, the extent of U.S. stockpiling, which depends on the U.S. Government's judgment of the world's strategic situation.

After estimating 1951 additions of five non-ferrous metals to strategic stocks, the *Survey* finds that supplies may this year be somewhat above those available in 1950. A prudent policy of cutting unessential uses could permit other production, provided supplies are prevented from going into private hoards.

It is unlikely that large-scale unemployment will develop in Europe as a result of material shortages, for it is one of the characteristics of an inflationary situation that employers hold on to labour for fear that it will no longer be available when shortages disappear. The cost is passed on to the consumer and—one of the gravest aspects of the situation—productivity will be likely to rise much less than would be technically possible.

## Italian Mining in 1950

(From a Correspondent)

Mining in Italy recorded a notable progress in 1950 in most of its branches, as compared with the previous year. As to lead ore, output totalled 63,214 tonnes, nearly 10 per cent more than the total of 57,642 tonnes attained in 1949, but still some 5 per cent below the pre-war (1938) total of 67,493 tonnes. It has, however, been stated officially that production of lead metal in 1950 was still below the total of 44,031 tonnes recorded for 1938; in 1949, it reached 28,460 tonnes. The output of zinc ores was 180,005 tonnes, as compared with 150,461 tonnes in 1949, an increase of about 20 per cent. In these totals high-grade zinc ores accounted for 139,132 tonnes (123,928 tonnes) and low-grade zinc ores for 40,873 tonnes (26,533 tonnes) an increase of approximately 13 and 50 per cent, respectively. The 1950 production of zinc metal (26,451 tonnes in 1949), has been stated to have exceeded the 1938 total of 33,637 tonnes by 12.9 per cent.

### BAUXITE OUTPUT AFFECTED BY CESSATION OF ISTRIA

The total bauxite output amounted to 153,433 tonnes in 1950, as against 104,852 tonnes in 1949, and 65,747 tonnes in 1946. In 1938 bauxite output was as high as 360,837 tonnes, but most of this was accounted for by the bauxite mined in Istria, then a part of Italy ceded to Yugoslavia after the war. Actually production of bauxite within Italy's present territory amounted to only 9,480 tonnes in 1938. Thus, the expansion between 1949 and 1950 amounted to something like 40 per cent.

The official report from which these particulars are extracted states that in spite of this notable expansion, it was still necessary to import bauxite from Yugoslavia in 1950 to cover home requirements. On the other hand, production of aluminium reached 37,000 tonnes in 1950, an expansion of nearly 50 per cent, over the total of 25,647 tonnes for 1949, which, in turn, was about the same as that recorded for 1938 (25,767 tonnes).

### SOARING ASBESTOS OUTPUT

Asbestos output soared to 21,400 tonnes in 1950, thrice the quantity mined in 1938. Good progress was made in fluorspar. Output of this mineral at 17,721 tonnes in 1949, had been more than halved compared with the total of 39,576 tonnes attained in 1948; in 1950, however, the total was again up by some 100 per cent, reaching 34,446 tonnes as compared with 12,186 tonnes mined in 1938. The development as to barytes was similar, and a net improvement over the 1949 total (46,616 tonnes) was recorded in 1950. In 1938 the total, was 48,169 tonnes.

The output of talc and steatite totalled 66,737 tonnes in 1950, and that of asphaltic and bituminous rock 247,349 tonnes, compared with 241,785 tonnes in 1949. Boric acid, originating from the Larderello wells in central Tuscany, which have been described fully in an article in the May 18, 1951, issue of *The Mining Journal*, totalled 4,789 tonnes in 1950, somewhat less than the 4,869 tonnes produced in 1949. Although reconstruction at Larderello has made good progress since the end of the war (when the Germans destroyed some 90 per cent of the plants before their retreat) the pre-war (1938) level of 6,167 tonnes still remains a long way ahead.

Output of graphite, at 3,855 tonnes in 1950, was somewhat below the total of 4,011 tonnes for 1949.

Output of marl for cement making, totalled 1,863,700 tonnes in 1950.

Production of mercury in 1950 (both ore and metal) almost reached the pre-war level. Mercury ore mined in 1950 totalled 149,906 tonnes, about 20 per cent more than the 1949 total of 124,184 tonnes. The figure for 1950 was

some 5 per cent below that of 156,606 tonnes for 1938, mined within the present boundaries, that is, excluding the output from the Idrija mines in Slovenia (Yugoslavia), then within Italy.

Output from the Idrija mines yielded an annual average of 301 tonnes of mercury metal for the 1935-1939 period, representing a considerable share of the Italian production.

### MORE MERCURY FROM TUSCANY

The expansion in mercury ore output between 1949 and 1950 has been secured mainly thanks to the development work carried out at the Abbadia San Salvatore mines in southwestern Tuscany, together with the re-opening of the Morone mercury mine (in the same region) which had been closed for some twenty years.

Intensification of output at Abbadia San Salvatore, aided by a programme of modernization and mechanization, taken in hand in 1950 and covering, in the main, transport, media and classification plant, as well as the feeding of the ovens, has, of course, been prompted by developments in the international situation. Expanding world demand, resulting from the international rearmament race, has been paralleled by rising prices. On the American market, Italy's best mercury customer, the price soared in the second half of 1950 from about \$70 a flask in June to more than \$140 a flask by the end of December. Producers' stocks are almost non-existent at present.

The mercury mines in Tuscany belong to the Societa Mineraria Monte Amiata, Italy's most important mercury producer. The recent increase in the share capital of this concern from L.656,000,000 to L.984,000,000, by having recourse to the revaluation reserves and by increasing the face value of the shares from L.400 to L.600, is said to be connected with the considerable means needed for the reconstruction and expansion of the Morone mine. The old shares are quoted at L.1,448, and the dividend for 1950 is expected to exceed the 10 per cent paid for 1949.

Sulphur, another scarce essential mineral has similarly profited from the worsening international position. Sulphur ore output rose from 1,427,264 tonnes in 1949 to 1,662,525 tonnes in 1950, an increase of more than 15 per cent. That of refined (melted) raw sulphur expanded from 188,544 tonnes to 213,132 tonnes during the time. The higher output of sulphur is a direct outcome of the U.S. decision to limit sulphur exports from the States. This, in turn, led to a higher demand from other countries for Italian sulphur and thus to an expansion of sulphur mining in Italy.

Italian sulphur exports to European countries within the O.E.E.C. programme for 1952 had been fixed at some 400,000 tonnes, beginning with 200,000 tonnes in 1951. It has been stated officially that this programme would have to be curtailed because increased home consumption which amounted to 115,000 tonnes in 1950, but is expected to reach 165,000 tonnes in the current year as a result of the intensified defence programme now in hand. It is, therefore, believed that sulphur exports to European countries in 1951 will have to be reduced to some 160,000 from 170,000 tonnes. This, despite the considerably expanded output programme in hand which, since 1950, benefited from counterpart Lire funds to the tune of L.9,000,000,000 (approximately £5,076,000) used for the development of the sulphur producing regions in Sicily.

### INCREASING SICILY'S SULPHUR OUTPUT

The programme to develop further Sicily's rich sulphur deposits envisages prospecting all over the Sicilian sulphur-bearing region extending over some 193 sq. miles of which only about 38 sq. miles are actually being exploited. The prerequisite to this development scheme



was the agreement of co-operation concluded early in January last between the Ente Zolfi Italiani (Italian Sulphur Board) and the Industrial Department of the Sicilian Regional Administration (Assessorato all'Industria della Regione Siciliana) both having previously claimed exclusive prospecting and mining rights in the island. Their activities in this connection have now been integrated. The Ente Zolfi Italiani is at present actively prospecting in the Riesi-Sommatino area some 22 miles from Canicatti, in the southern part of the island's eastern half. A modern floatation plant, bought in the past year in U.S.A. with E.R.P. funds, has been installed at the Cozzodisi mine. The share of the Montecatini concern, Italy's leading mining and chemical concern, in the production of melted sulphur amounted to some 80,000 tonnes in 1950.

There was a slight increase in the output of pyrites in 1950 to 895,459 tonnes from 863,724 tonnes in 1949. Most of this increase originated from the new plant for the decantation sludge at the Gavorrano mines, Italy's most important pyrite mines, located in western Tuscany, some 130 miles to the north of Rome, and from the introduction, in the same mining area, of modern mechanized cutting methods and from the mechanization of transport. Prospecting for further pyrite deposits is in hand at present in the Maremma region.

A new pyrite washing plant is in operation in the pyrite region of Elba. Recent prospecting on this island has revealed traces of pyrite sulphide ore deposits along the eastern coast facing the Italian mainland. It might be of interest to learn that, out of the above-mentioned pyrite production for 1950, the mines of the Montecatini concern have been responsible for 750,000 tonnes.

The output of antimony ore has not yet regained the pre-war level of 5,139 tonnes in 1938, and even showed a drop as compared with the total of 4,448 tonnes reached in 1947. It fell to 4,171 tonnes in 1948, and further to 3,292 tonnes in 1949, but improved slightly to 3,696 tonnes in 1950.

## Portuguese Wolfram and Tin Exports

(From Our Own Correspondent)

Oporto, May 16.

The situation as regards wolfram shipments from Portugal at the moment is very unsatisfactory. The only country to which export licences are being freely issued is the United States. Rumours are current that one foreign power is bringing pressure to bear to get the present export duty of Esc.36 per kilo on wolfram ore removed. Production of wolfram in the first two months of the year was 607 tonnes as compared with 143 tonnes for the first two months of 1950, while exports for the first quarter were 587 tonnes against 539 tonnes. Thus despite the great increase in production this year, exports have only risen by about 50 tonnes. The net result of recent legislation has reduced wolfram exports in March, the last month for which figures are available, to 117 tons as compared with 356 tons in March, 1950. No export licences are being issued for Sweden or Germany.

No export licences for tin are being issued and as local smelters charge about £50 per ton to smelt 70 per cent concentrates, the result is that the metal costs far more in the country of production than it does in the U.K.

Export licences for tantalite/columbite to the U.K. have been refused as have those of titanium to France.

Your correspondent would willingly assist any U.K. buyers who may be contemplating a visit to Portugal regarding the status and *modus operandi* of local dealers in Portugal.

## The Sulphur Famine

The Sulphur Committee of the International Materials Conference in Washington issued a report of the world position of sulphur recently and a summary has been released indicating that the free world requirements of sulphur in the current year are expected to exceed supply by at least 1,000,000 tons. With increased demand the shortage may be still greater. The following is the substance of the summary of the report.

Sulphur or its principal compounds—sulphuric acid, sulphur dioxide and carbon bisulphide—are not only essential to most industries, but they are of high defence importance. An examination of statistics reveals that demand for sulphur, as such, has increased by 32 per cent since 1949. This increase is due to expansion in the use of sulphuric acid for the manufacture of super-phosphate, ammonium sulphate; textiles (rayon in particular) and dyestuffs; in the metallurgical field; for sulphur dioxide for wood pulp; for insecticides, food processing and explosives.

Sulphuric acid is the main consumer of sulphur. Statistics available to the committee, though incomplete, reveal that, in 1939, approximately half the sulphuric acid produced in the world was made from pyrite and approximately 35 per cent from native sulphur. In 1949, the percentage of these materials used in making acid had been reversed.

This position developed because sulphur of high purity from salt domes in Texas and Louisiana became available in large quantities at a price which made it the most attractive source of sulphur for many countries. The Committee's enquiries reveal, however, that production of sulphur from the U.S. is not keeping pace with demand and that the known reserves of sulphur in these domes are not large enough to meet world demand at current levels.

### PRODUCTION PROBLEMS

In reaching its recommendations, the Sulphur Committee considered, first of all, production problems, especially with regard to the expansion of output of sulphur and sulphur-bearing materials. An examination of the statements submitted by members of the Committee suggests that the following possible sources of supply would repay investigation: (i) native sulphur; (ii) pyrite; (iii) smelter (roaster) gases; (iv) anhydrite and gypsum; (v) spent oxide from coal gas, coke oven gas, and flue gases from power stations; (vi) natural gas, and (vii) crude oil-cracking and refining.

As regards native sulphur the technique of sulphur production from domes by the Frasch process is well known; increased production by this method depends largely on discovery of new domes of adequate sizes.

Deposits of sulphur occur at the surface and at shallow depths in the Western United States. The deposits are different from the domes worked by the Frasch method and processes have been developed in the U.S. which show considerable promise for the commercial production of high-grade elemental sulphur from this type of deposit.

In Italy, a comprehensive programme is in hand for the modernization and expansion of the sulphur industry. The programme includes the improvement of mining methods and of underground haulage. Steps are being taken to install floatation plants and a new method of distillation will be introduced. Exploration for new deposits is being conducted on a large scale.

Examination of information concerning the geological conditions in which the U.S. and Italian deposits occur, may suggest possibilities for exploration for similar deposits in other countries.

On the increasingly important subject of pyrite, the Committee's report points out that important quantities can be obtained economically in certain locations by mining it as the primary product (where it occurs in sufficiently

large quantities, particularly if other metals are associated with it and are economically recoverable); as a by-product from the mining of other metals, and as a by-product from coal mining. Considerable quantities of pyrites are being mined or recovered already as a by-product of the mining of other metals, *e.g.*, copper, gold and tin. Thus, the methods of production and recovery are well established. Some coal contains significant quantities of pyrite, some of which is probably economically recoverable and small quantities of pyrites have been recovered from the mining of coal in the U.S. for many years.

### INCREASING USE OF PYRITE

Pyrite has long been used in many countries as a raw material for the manufacture of sulphuric acid and several countries have plans for increasing its use for this purpose. These plans include the mining and recovery of larger quantities, conversion of sulphur-burning plants and the erection of new plants. It is certain that greatly increased quantities of pyrites can be obtained in several countries.

If there is a market for sulphuric acid within a reasonable distance of a pyrite roaster, the most economic method of using the roaster gases is by conversion to sulphuric acid. In remote localities, or where the demand for sulphuric acid is substantially less than the potential capacity to produce it, an economic method of recovery of the sulphur as elemental sulphur would be of great value. The development of such a method, by providing an easily transportable product, would also increase availability of world sulphur supplies.

Research and development have been carried on for many years to devise commercial methods for the recovery of elemental sulphur, both directly from sulphide ores and from by-product metallurgical gases. As a result, several technically feasible processes have been developed, but only two or three have been applied commercially, and then only under special conditions.

Where a market for sulphuric acid is conveniently situated in relation to smelters (roasters), gases derived from the roasting of zinc concentrates generally represent an economic source of sulphur for use in sulphuric acid manufacture. Therefore, zinc roaster gases are used wherever conditions are favourable. However, there are substantial quantities of sulphur available from the roasting of zinc concentrates which are not being recovered.

Sulphur is also recovered from the roasting of copper and lead ores, but not to the same extent as from the roasting of zinc concentrates. So far, no comprehensive survey has been made of the quantity which would be available if this sulphur were recovered, but it is known that it is large.

### ANHYDRITE AND GYPSUM

Both anhydrite and gypsum occur in large quantities in many countries and represent an important sulphur reserve. Anhydrite can be used directly for the manufacture of sulphuric acid and it has been demonstrated in Europe that this is economical, provided there is also a market for cement, which is a by-product of the process. The U.K. already makes considerable quantities of sulphuric acid from anhydrite, and plans to increase production from this mineral. Anhydrite and gypsum may be substituted for sulphuric acid in the manufacture of ammonium sulphate. A large part of the ammonium sulphate produced in the U.K. is made directly from anhydrite, and this method is also used in France. In the Netherlands and Belgium, new processes have been worked out in which gypsum is substituted for sulphuric acid in the manufacture of ammonium sulphate.

Methods which can be used to recover sulphur from coal gas and from coke oven gases are well known. In most countries, sulphur must be removed from

coal gas and the spent oxide method is the one commonly used. It appears that the resultant spent oxide is not fully utilized; in the U.K., however, it is employed in acid making and, in France, it is made into "black" sulphur, which can be used for vine dressing instead of native sulphur.

Important quantities of sulphur are recovered from natural gas in the U.S. It may be noted also that it is planned to recover 12,000 tons of elemental sulphur annually from natural gas in Western Canada, commencing in 1952.

Sulphur occurs also in crude oil and may be recovered in the refining or cracking process. It appears that, until recently, comparatively little has been done to recover the sulphur available from this source. In cracking plants now being erected in the U.K. and in the Netherlands, however, provision is being made for sulphur recovery. Research is being carried on in this country and elsewhere into the recovery of sulphur from residual fuel oil.

### CONSERVATION METHODS

Statements by various delegations indicate that sulphur can be conserved in the following ways:

(a) By regeneration of sulphuric acid used in the manufacture of aviation gasoline, provided that aviation gasoline output is extensive.

(b) By recovery of sulphuric acid used for pickling steel and the manufacture of titanium dioxide, especially where the units are large.

(c) In the production of triple superphosphate, approximately 10 per cent more of equivalent sulphur is required than for normal superphosphate. However, calcium sulphate, obtained as a by-product from the production of triple superphosphate, can be utilized in certain other manufacturing processes, *e.g.*, in some countries calcium sulphate (as indicated above) is used to produce ammonium sulphate, thereby reducing consumption of sulphuric acid.

(d) Finely ground rock phosphate may be used as a soil dressing. Scope for this method of conservation is limited as it can be used only where soil and climatic conditions are suitable.

(e) The usefulness of a given amount of sulphur can be doubled through the utilization of sulphuric acid in manufacturing potassium or sodium sulphate, thus obtaining hydrochloric acid as a by-product.

(f) Research to develop processes for the recovery of carbon bisulphide and sodium sulphate is being conducted in many rayon-producing countries, but no inexpensive process has been developed so far.

(g) The more efficient use of sulphur in the manufacture of paper and pulp is being studied; it would seem that this can be achieved only at the expense of wood pulp yield. Where paper and pulp factories are using chemically prepared salt cake, a large amount of sulphur can be conserved by the use of the electrofilter recovery process.

The use of sulphur can be dispensed with in the manufacture of concentrated superphosphate (45 per cent  $P_2O_5$ ), which can be made by treating phosphate rock with phosphoric acid. The phosphoric acid is produced from phosphorus which is made from phosphate rock by the electric furnace process, but this method can be used only where very cheap power is available. In several countries nitric acid has been substituted for sulphuric acid in the manufacture of fertilizers.

A number of countries have already taken, or are taking, measures to control the internal consumption or distribution of sulphur and sulphur derivatives. The methods adopted vary from country to country and include complete statutory control over both sulphur and sulphuric acid; allocation of sulphur and sulphur derivatives by consultation between government and industry and adoption of conservation and substitution methods under government control.

## Concentrating Iron-Ore by the Gravity-Flotation Process

The future of the steelmaking industry of the Birmingham, Alabama, district is dependent on the development of workable, economic processes of ore concentration, states Mr. Ballard H. Clemmons, acting chief Metallurgical Branch, Minerals Technology Division, U.S. Bureau of Mines, in the December, 1950, issue of *Mining Engineering*. Iron ore, fluxing stone, and coking coal—all the primary iron-making materials occur within a 25-mile radius of the blast furnaces.

Commercial ore of the district consists mainly of a 10 to 20 ft. haematite-calcite-silica bed, locally known as the "Big Seam," a component of the Clinton formation of Silurian Age. The submarginal ores of the district consist of (1) several individual beds of ferruginous sandstones and weathered red ore outcrops in the immediate vicinity of Birmingham; (2) beds of red ore similar to the Big Seam—in most instances too thin for a separate mining operation—but usually adjacent to the ferruginous sandstone mentioned above and probably best treated with them; (3) in some localities, 4 to 8 ft. of lower-bench. Big seam ore has been left in the red ore mines owing to a slightly excessive silica content. Part of the lower bench ore could be mined, part could not, owing to rock falls in the old stopes.

### ALABAMA IRON-ORE STUDIED

The location and grade of all six recognized iron-bearing strata of the Birmingham district were studied. Numerous dissections of samples were presented and discussed which showed:

(1) The haematite of the southern ores is basically an amorphous form of the mineral that tends to form slime on grinding. In practice, only 10 to 20 per cent of the haematite of the ores slimes rapidly upon wetting and light grinding. (Slime is defined as —20-microm material.) The remainder is reduced to slime more readily than a specular-type haematite, but in most instances is more resistant to further size reduction than might be expected. As a result, a major part of the haematite in the red ores can be treated by hydraulic classification and tabling without excessive slime formation.

(2) The dissection showed further that the ultimate grade of concentrate obtainable by any physical method is limited to 50 to 60 per cent iron by the presence of 8 to 15 per cent of insoluble matter, derived from an argillaceous diluent that is so closely associated with the haematite as to be physically non rejectable.

(3) The studies showed further that appreciable quantities of haematite in ores are liberated in each screen size below 20 mesh. In these fractions there is also present true tailing and, in coarser sizes, a large amount of true middling. The quantity of middling decreases rapidly below 48 to 65 mesh, but some locking persists into —200 mesh sizes. The liberated haematite present in the coarser sizes is of as good quality as can be obtained by any reasonable degree of additional grinding. In general, the same conditions prevail in the case of the ferruginous sandstones, except that little haematite is liberated until ores are crushed to pass 35 mesh. Liberation ordinarily is attained with greater difficulty in treating the sandstones because a large proportion of the haematite is present as rather tightly bound shell-like coatings of the individual quartz grains rather than as oolites or fossils of tangible size and thickness.

(4) Finally, the studies showed that little reduction in the phosphorus content of iron ore concentrates is to be

expected. If anything, the concentrated product will actually contain a slightly higher percentage of phosphorus owing to the rejection of gangue that contains no phosphorus. From these fundamental studies, the investigators concluded that the ores should respond to concentration by either magnetic separation (after roasting) or by gravity concentration.

In 1927 a study by batch and pilot-plant methods of the roasting and magnetic concentration of samples of red ore was published. The data showed that the ores were readily beneficiated by magnetic methods. Various attempts to apply the process commercially have not as yet been successful, and present high fuel costs make the future of the process even more obscure.

Unquestionably, the method is attractive primarily because first, actual separation costs are low and secondly, because it offers a means of at least partly relieving the difficulties of handling slime products.

Much of the early work with gravity methods was directed toward the establishment of conditions that would liberate haematite with minimum grinding of quartz. At that time there was no known method of removing ground quartz from the slime of fine haematite product that, of necessity, was accepted as concentrate. This work established the practicality of beneficiating the high silica red ores by hydraulic classification and tabling, even though the procedures were based on an undergrind of the ores and re-circulation of a heavy middling fraction through the grinding section. With the development of the flotation method of rejecting fine quartz from haematite ore slimes, extreme care in grinding was no longer an absolute necessity, even though still desirable.

In the work on the red ores, the principles of classification and tabling as applied to these materials were studied. A control method of rapidly estimating the grade of table concentrate was developed. Other scientists studied the possibilities of heavy-media separation of red ores and found that the method could be economically applied to reject accidental contamination derived from parting-seam and rock-fall material whenever the latter were present in quantities as great as about 10 per cent of the feed. The process was inoperable as a means of reducing the natural quartz content of the ores, due to the fine size of this gangue. They further studied the application of the Humphreys spiral concentrator to the gravity treatment of Birmingham red ores and found that, although the unit is not an all-purpose device permitting complete treatment of the ores, there is a good possibility that the unit will find application as an adjunctive beneficiation device.

### SUCCESSFUL SOLUTION REPORTED

Other scientists reported in 1945 successful solution of the problem of rejecting fine gangue from ball milled red iron ore slimes, particularly calcareous red ores. Their preferred procedure employed flotation of the naturally activated quartz (activated by lime salts present in calcareous ores) from strongly caustic alkaline pulps, while retarding the haematite into the flotation cell underflow. The quartz was filmed and floated by means of tall oil, an inexpensive papermill waste product. Reagent costs amounted to 14c. per ton of feed or 17 to 20c. per ton of concentrate. Workability of the process was thoroughly demonstrated by operation of a pilot-plant flotation unit in a Birmingham concentrator for several weeks.

In recent years, studies have been continued and expanded to include the non-calcareous surface (leached) red ores and the ferruginous sandstones. Concentration of these materials necessitated preflotation treatment of the ground ore pulps to activate the quartz for subsequent flotation and rejection. Use of the process in batch tests made on naturally leached red ores yielded products containing from 50 to 59 per cent Fe, depending on the quantity of argillaceous gangue present in the ore.

### PILOT PLANT TESTS

In a recent study, activation processes formerly used only in batch testing have been successfully adapted to a continuous operation pilot-plant scale. Pilot-plant tests were made on a 28 to 29 per cent Fe sample from a vertical 64 ft. outcrop (containing Ida, fine-grained Big Seam, ferruginous sandstone, and Irondale ores) in the northeast Birmingham area. A combination of classification, tabling, and flotation was used, resulting in iron products containing 49 to 51 per cent Fe, with 85 to 90 per cent Fe recoveries. Determination of the true quartz contents of the iron products showed that about 90 per cent of the quantity of this mineral present in the feed had been rejected. The remaining 18 to 19 per cent insoluble content of the concentrate was largely due to non-rejectable argillaceous material. Reagent costs amounted to 25 to 30c. per ton of concentrate.

Similar tests, made on a friable, crumbly, surface ore from the area (again a mixture of ore beds, containing only 23 per cent iron), resulted in the recovery of a 50.5 per cent Fe product. Reagent costs were 13c. per ton of feed or 36c. per ton of concentrate.

In the combination gravity-flotation process, selective grinding continues to be desirable, but is no longer a necessity. The grind is held as coarse as is commensurate with the liberation characteristics of the ore being treated. Hydraulic classification is not highly critical, and separation into two or three sizes in all likelihood will suffice. Thickening and filtration of fine material are probably the greatest problems involved in the process, but are not insurmountable difficulties, due to recent technical advances.

### CONCLUSIONS

By the combination gravity-flotation concentration method, many of the ores will permit recovery of appreciable amounts of haematite in sizes up to 20 mesh and concurrent rejection of a large amount of natural-size quartz. Pilot-plant tests have shown that 40 to 60 per cent by weight of plant feeds can be rejected on concentrating tables and need not be sent to flotation (table concentrates contain 50 to 55 per cent Fe and table tailings 4 to 12 per cent Fe). This should reduce grinding costs considerably. Flotation-reagent combinations have been developed and verified on a pilot-plant scale that permit ready treatment of the entire slime fraction of the ores whenever necessary. The process allows rejection of essentially all quartz gangue from fractions as fine as 5 microns in size. Methods have been devised that permit either removal of calcite as a separate product or retardation of the mineral with the iron as desired. Haematite slimes have concurrently been thickened and as much as 75 per cent of the mill water recirculated for considerable periods without deleterious effect. Pilot-plant results (which experience has often shown indicate higher than commercial plant costs) show that the cost of reagents will be 20 to 25c. per ton of ore treated, depending on the nature of the ore being concentrated. In view of these and other considerations, it is believed that the described combination process offers the greatest chance of economic application in the district.

## REVIEWS

### Report and Statistics Relating to the Mining Industry in Malaya for 1951

The Department of Mines, Federation of Malaya, states that it has been decided that, for 1951, there will be an alteration to the present arrangement of the *Annual Report on the Mining Industry* and of the printed *Annual Bulletin of Statistics Relating to the Mining Industry*. The Report for 1951, to be published in 1952, will consist mainly of descriptive matter with a minimum of statistics. A separate statistical supplement to the Report will also be printed; this will contain all statistics at present found in the Report and in the Bulletin. Publication of the latter will be discontinued. This arrangement will avoid considerable duplication, and it is hoped that it will also prove to be more convenient.

The present *Quarterly Bulletin*, produced in a duplicator, will be continued, but from now onwards a charge of 50c. will be made for a year's issues, together with 50c. for postage outside Malaya.

Henceforth all publications of the Mines Department will employ the word "ore" in its correct sense, *viz.*, when referring to ground not yet mined, but which can be mined profitably. The word "concentrates" will be used when referring to minerals which have been mined, and have been separated from at least some impurities in the ore. The only exception to the above nomenclature will be that "iron ore" will be used for any mineral valuable as a source of iron, both before mining and when saleable.

**Monthly Mining Handbook.**—Published by Fredc. C. Mathieson & Sons, 16, Cophall Avenue, London, E.C.2. Price 2s.

The mid-May, 1951, issue of this valuable hand-for investors contains, as usual, the latest mining results, gold mining profits, crushings and comparisons, recent prices of leading mines as well as highest and lowest for 1950 and 1951.

We have also received from the same publishers, the Annual Supplement to their *Monthly Mining Handbook*, giving on 108 pages highest and lowest prices, dividends, etc., for the past six years. (Price 2s. 7½., post free.)

**Official Year Book of the Union of South Africa.**—No. 24—1948. Pp. viii + 1357.

Part I of the present volume contains again a great wealth of information relating to every aspect of South Africa's political, economic, and social life, and includes a chapter on South West Africa. Chapter XXII gives a concise, yet informative survey of mining.

The three chapters of Part II are devoted to Basutoland, Bechuanaland Protectorate, and Swaziland, every chapter containing particulars about mines.

### P.O.A. Raw Material Survey Series

The Purchasing Officers' Association, Wardrobe Court, 146a, Queen Victoria Street, London, E.C.4, has recently published two further booklets in its new Raw Material Survey series, entitled "Chemicals and Fertilizers," by F. Richard King (No. 17, Price 3s. 6d.), and "Raw Materials of the Refractories Industry," by R. J. Mitchell (No. 18, Price 2s. 6d.). Both cover the syllabus of the Association's Final Examination subject, "Raw Materials (Economic and Geographical Survey)."

### Wiggin Nickel Alloys

The current issue of Wiggin Nickel Alloys (No. 14) includes articles on concentrating sodium sulphide, water treatment, chemical valves and cocks, belt fastenings, pickling plant, enamelling perrits and methods of tipping carbide tools. In addition, instructions on methods of perforating high nickel alloys are given.



## Machinery & Equipment

### Malaya's Mining Machinery Imports

The recently published detailed returns of Malayan mining machinery imports during 1950 provide the basis for interesting comparisons with imports in 1947 and 1949, respectively. In spite of the fluctuation of imports of certain types of machinery these figures prove again the importance of this dollar-earning country as a market for the British mining machinery industry. Comparing the 1950 figures with those of previous years, one should, however, bear in mind the increase of prices following the devaluation of sterling and of the Malayan dollar in the autumn of 1949. The following tables give details of imports of mining machinery into Malaya (all figures in Malayan dollars, c.i.f. values), and show that U.K. manufacturers should closely watch, particularly in the interest of a long-term policy towards this traditional British market, machinery imports from other than U.K. sources.

<i>Cranes, Hoists, etc.</i>			
Imports from:	1947	1949	1950
U.K. ....	176,500	417,839	512,829
Canada .....	4,558	—	—
Australia ...	—	7,782	4,454
U.S.A. ....	28,288	204,289	26,424
Total.....	209,346	629,910	544,935

Imports in 1949 and 1950 show a considerable increase as against the 1947 figure, and it is noteworthy that nearly 95 per cent of imports last year came from the U.K., while nearly a third of the total was imported from the U.S.A. in 1949.

During 1950, Malaya exported this type of machinery to the value of \$M.151,998 (\$M.81,693 in 1949), including \$M.102,950 worth to Australia and \$M.22,007 to Thailand.

<i>Dredges and Dredging Materials</i>			
Imports from:	1947	1949	1950
U.K. ....	4,296,604	2,578,500	5,786,546
Canada .....	30	32,121	27,071
Australia ...	1,304,301	854,102	1,680,078
France .....	5,030	—	—
Netherlands ..	258,240	—	531
Sweden .....	1,549	—	—
Switzerland ..	2,949	209	—
U.S.A. ....	1,548,263	1,856,228	982,598
Belgium .....	—	961	6,831
Germany ...	—	4,558	—
Total...	7,416,966	5,326,979	8,483,655

The increase of total imports, as well as of imports, from the U.K. and Australia on the one hand, and the drop of imports from the U.S.A. on the other hand, are noteworthy. The increase of the total imports in 1950 as compared with 1949 is particularly significant, as exports of this machinery from Malaya, which amounted to \$M.549,589 in 1949, decreased to \$M.278,559 in 1950. The greatest part of the exports went to Thailand.

<i>Mobile Mechanical Excavators</i>			
Imports from:	1947	1949	1950 <sup>1</sup>
U.K. ....	331,010	1,078,673	1,066,311
Ceylon .....	55,250	—	—
Australia ...	20,000	—	32,161
U.S.A. ....	94,915	562,725	486,824
North Borneo ..	—	—	8,500
Total...	501,175	1,641,398	1,593,796

<sup>1</sup> includes ancillary excavating equipment and parts.

Imports of this type of machinery in 1949 exceeded those for 1947 more than three times, and while in 1947 the U.S. share of total imports amounted to less than 20 per cent, the 1949 share rose to over 34 per cent of the increased total imports.

During 1950, Malaya exported excavators, etc., to the value of \$M.438,139, including \$M.369,994 worth to Australia, while the total value of the exports of parts amounted to \$M.80,445, including \$M.63,173 to Australia.

<i>Other Mining Machinery and Parts</i>			
Imports from:	1947	1949	1950
U.K. ....	1,516,813	2,298,861	172,713
Australia ...	46,502	324,585	31,713
Netherlands ..	4,500	—	—
U.S.A. ....	150,930	539,882	1,047,267
Switzerland ..	3,900	—	—
Belgium .....	—	—	3,035
Japan .....	—	10,417	—
Total...	1,723,647	3,182,239	1,254,728

While total imports have dropped by about 60 per cent from 1949 to 1950, imports from the U.S.A. nearly doubled during the same period, and the U.S. share rose from less than 10 per cent in 1947 to over 80 per cent in 1950.

Malaya exported this type of machinery to the value of \$M.94,648 in 1949 and \$M.73,930 in 1950, most of it to Thailand.

### Norwegian Alumina Plant for Disposal

Of considerable interest to mines, quarries, steel works, cement works, etc., will be the announcement by George Cohen Sons & Co., that they have obtained for disposal several hundred thousand pounds worth of first-class equipment formerly used to develop the Norwegian alumina industry.

Most of the plant is unused and much of it has never been erected. The more important items are: an exceptionally large plant for the packing of dry powders in self-closing paper sacks which includes two Schmidtpack plants, having a total capacity of 120 tons of dry powder per hour, a battery of steel silos and pneumatic handling plant; four Siemens-Lurgi-Cottrell Electro-Static Precipitation Plants of very large capacity; Drum Type Concentration Filters; an unused Rotary Kiln some 165 ft. long; six Escher Wyss Turbo Gas Compressors and Mixers and a very large quantity of Elevators, Conveyors, Shaking Screens, Magnetic Separators and associated items.

Most of the plant lies at Saudasjoen, in the south-west of Norway, and the balance at Aardal, to the east of Bergen.

At both sites, there are deep water berths which will accommodate ships of almost any draught, and arrangements have been made for the careful marking, dismantling and packing of the plant to suit buyers' requirements.

### The "Holset" Flexible Rubber Block Coupling

We have just received an illustrated catalogue from G. E. Simm (Machinery) Ltd., East Parade, Sheffield, 1, (sole sales agents for the products of W. C. Holmes & Co., Ltd., Huddersfield), describing the "Holset" flexible rubber block coupling, which has been introduced in order to meet the growing demand for a simple, heavy-duty coupling which will protect connected machinery from the damaging effects of misalignment and, above all, from shock and vibration.

### Exide-Ironclad Batteries for Traction

A new 40-page catalogue, just published by Chloride Batteries, Ltd., Clifton Junction, near Manchester, gives particulars of the famous Exide-Ironclad range of batteries for electric traction. In all, 161 different sizes and types of Exide-Ironclad cell are described in this catalogue by means of tables showing dimensions, weights, capacities, charging rates and voltages at various rates of discharge.



### Goodyear Conveyor Belt for Moroccan Lead Mine

Conveyor belts, produced by the Goodyear Tyre & Rubber Co. in its factories at Wolverhampton, are famous for the wide variety of jobs they perform at home and in many parts of the world. For instance, four belts have recently been shipped, with a total length of 3,780 ft., weighing over 23 tons, to Freetown, Sierra Leone, for mining service. Previously, another belt, 875 ft. long and 48 in. wide, weighing 6½ tons, was shipped from Wolverhampton to Sweden. However, to Roy Middleton, of the Industrial Rubber Products Department of Goodyear at Wolverhampton, fell the unusual and difficult task of supervising conveyor belt installations at a newly developed lead mine at Bou-beker, in the High Atlas mountains of Morocco.

The work which was hampered by snow and ice and had to be done with little skilled Moorish labour, entailed the installation of 13 Goodyear conveyor belts to deliver lead ore from the shaft to plant. The average size of the belts is 36 in. and the incline is 13 deg. The belts travel at an average speed of 300 ft. per minute, each being capable of dealing with 600 tons per hour.

### "Dieslip" Fuel Oil Additive

Since the quality of current supplies of DERV fuel oil varies greatly, the use of "DIESLIP," made by Slip Products & Engineering Co., Ltd., Slip Works, St. Albans, Herts., is claimed to be the best means of ensuring consistent results. Modern heavy detergent oils will give excellent results with fuels of good quality, but the additive content is not sufficient to cope with fuel of high sulphur content or low cetane value.

The use of "DIESLIP" will, according to the makers, prevent the formation of excessive engine deposits due to these causes. It will also promote easy starting as a result of the maintenance of full compression, by the correct functioning of piston rings and valves, by reduction of internal friction, and by the efficient operation of the injectors.

"DIESLIP" should be used in the proportion of one gallon to every one hundred gallons of fuel oil. It can be added to the main storage tank as it mixes readily. "DIESLIP" may also be used with lubricating oil in the proportion of one pint to the gallon and half pint to one gallon when detergent oil is used.

Further details about "DIESLIP," and extracts from reports received from users are given in a new leaflet "Diesel News," copies of which may be had upon application to the company's above-mentioned address.

### The "Staffa" Senior Former Head

This accessory, designed and marketed by Chamberlain Industries Ltd., Staffa Road, Leyton, London, E.10, for users of their two-stage hydraulic tube bending machine, extends the range of this model to deal with 2½ in. and 3 in. nominal bore steam and gas tubes of all classes.

It is manufactured from mild steel, accurately fabricated, and is supplied complete with end formers, end former pins, 2½ in. and 3 in. centre formers, 2 x 6 in. and 1 x 9 in. extension rams (the last named items for increasing the angle of bend from 90° to 160°).

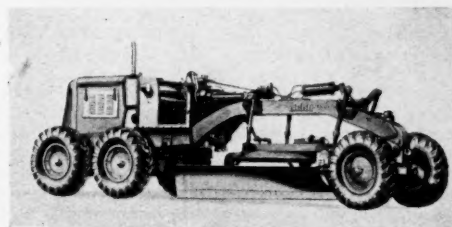
### Edge Quality Chains

A 12-page booklet has just been issued by Edge & Sons, Ltd., who have been making chains in Shifnal, Salop, for over 150 years. It includes tables giving details of wrought iron and mild steel chain, together with safe working, proof and test loads as well as the maximum safe working loads for double leg chain slings, showing comparable permitted loading for "higher tensile" steel.

The company is also making chains of manganese 1.5 per cent steel—the only steel which carries a certificate giving exemption from periodic annealing on application to H.M. Inspector of Mines.

### The Carlisle Motor Grader

The illustration below shows the Carlisle Motor Grader (Model 200) which, as stated on p. 343 of the April 13, 1951, issue of *The Mining Journal*, is now being produced in this country by the Distington Engineering Co., Ltd. (a subsidiary of The United Steel Companies, Ltd.) and will be available for sterling through the Blackwood Hodge Organisation, the holders of world distribution rights. Visitors to the company's outdoor stand at this



The Carlisle Motor Grader (Model 200)

year's B.I.F., Castle Bromwich, will recall the considerable attention attracted by the prototype shown.

One of the main features of the Carlisle Motor Grader—particulars and specifications of which appeared in the above-mentioned issue of *The Mining Journal*—is of course that the hydraulically operated blade-turntable is capable of revolving through 360° and of tilting to any angle up to 90°.

### Copto Cutting Compound

The Copto cutting compound, manufactured by Sozol (1924) Ltd., 2, Copthall Buildings, Copthall Avenue, London, E.C.2, has manifold uses, including the machining, reaming and tapping of difficult metals, including bronze, cast iron, mild steel, stainless steel, high carbon steel, and many others.

With the use of the usual acid-containing cutting compounds, the screwed threads are often stripped as the tapping tool is finishing the operation, and the loss caused by rejects and split metal is very high. However, when Copto is used for this purpose, the number of rejects through the above cause is claimed to be almost negligible, the saving in raw material and labour paying for the cost of this cutting compound many times over.

The following are some of the advantages of using Copto: (1) better threads; (2) high reduction in rejects; (3) reduction in number of operations necessary to bring thread to size; (4) doubles or trebles the life of the cutting edges of the tools; (5) metals previously regarded as almost unmachinable and untappable can be easily worked; and (6) ensures that difficult tapping operations can be easily overcome.

### The New Compact Comfo Respirator

The new Compact Comfo Respirator, developed by Mine Safety Appliances Co., Pittsburgh, Pa., is claimed to provide protection for workers in all industries where toxic or fibrosis-producing dusts are hazards. The re-designed respirator, which has been approved by the U.S. Bureau of Mines, features a new type mineral wool filter which requires less than half the filter area and offers only half the breathing resistance of previous models with the same dust collecting efficiency. Because wearing comfort is a vital consideration in respirator design, the new models have one-piece headband that may be worn on the neck or crown and the cushion type facepiece is stated to assure a gas-tight seal for a wide range of facial contours.

## Metals, Minerals and Alloys

The Lord Privy Seal, Mr. Richard Stokes, returned from a visit to the United States on Tuesday, with good news regarding United States assistance in supplying raw materials. Sulphur supplies for the second half of the year will be better, and he expected a definite announcement would be made in Parliament in about a fortnight. The sulphur supply situation in the United States appears to have considerably improved in recent months. Production in the first quarter was 1,315,122 tons compared with 1,190,599 tons in the first quarter of 1950, while sales declined to 1,172,868 tons as compared with 1,301,377 tons for the first quarter of last year. Producers stocks also consistently improved in the first quarter. We shall also get more American freighters to help in the import of iron ore. The cotton outlook is also much brighter. He stated that their biggest discussions were on molybdenum of which the United States is the world's chief producer. While the International Material's Commission had advanced far in their work, any big decisions were unlikely until the end of the year. Mr. Stokes also visited Ottawa.

The continuance of an active stockpiling programme in the United States is indicated by the request from President Truman to Congress for a further \$800,000,000 to stockpile strategic and critical materials for the fiscal year 1951-1952. This is additional to the \$4,400,000,000 already made available.

**Copper.**—The many uncertainties which beclouded the copper situation were relieved on Tuesday when President Truman signed the Copper Duty Suspension Bill. The metal will now be duty-free on entering the States, retroactively from April 1 until February 15, 1953, so long as the price is not less than 24c. The various difficulties regarding two-priced copper in the U.S. regarding which many commentators have offered various complicated suggestions for its solution, has now been solved by the simple process of advancing United States domestic price by 3c. to 27½c. which will now be the world price and, combined with the drastic cut in supplies for civilian industry in the States, should materially assist the growing supply impasse.

At the end of last week copper and brass for civilian industries was drastically cut by a government order allocating 75 per cent of the supply for defence purposes. Hitherto civilian industries receiving about 85 per cent of supplies as against the 25 per cent now permitted. This great cut must of course stimulate the demand for substitute materials.

U.S. domestic sales for May up to the middle of the month were reported as over 94,000 s.tons with June engagements around 20,000 tons.

The Copper Institute figures for April give the U.S. output of crude as 91,055 s.tons and refined 103,494 s.tons (112,933 in March). Deliveries are computed as 114,744 s.tons (116,793). Stocks were reduced to 52,800 s.tons (55,609 in March). World production of crude outside the United States (excluding Russia, Japan, Australia, Norway, Sweden and Yugoslavia) is given as 117,775 s.tons (119,141 in March), and of refined 104,831 s.tons (100,946). Deliveries are computed as 87,829 s.tons (80,050 in March). While stocks improved to 164,588 s.tons (161,720).

As we go to Press, the Ministry of Supply announces an increase in the price of electrolytic copper from £210 to £234 per l.ton.

**Lead.**—The Lead Industry Association, covering not only the producing but the consuming interests in the United States, at their annual meeting decided to ask for the suspension of lead tariffs for two years provided the

market does not drop below the "official" price of 17c. They also ask for the "official" price to be revised upwards in line with the current world market. The provision of 20 per cent of production for Defence Orders is stated to be drastically short of D.O. requirements, consequently supplies for these orders have to be pro-rated. Civilian allocations are now being taken in hand with the prospect of acute shortage. The Bureau of Mines gives the U.S. March output as 37,615 s.tons, which is somewhat better than the monthly average last year of 35,823 s.tons. Mexican lead continues firm at 20-22c. f.a.s. Gulf Ports but supplies are very tight and sales consequently restricted.

Addressing the Lead Industry Association members, Mr. Francis Cameron, vice-president of the St. Joseph Lead Co., deprecated the idea that the lead resources of the United States were failing. He said he believed that if estimates of ore reserves were compiled by the same authorities and on the same basis as a few years back, they would be found to show little change, indeed they were possibly better.

U.K. imports in April were 6,248 tons (2,295 tons in March). Canada supplied 2,350 tons and Australia 2,010 tons.

**Tin.**—Tin has been a hesitant market with the R.F.C. price unchanged at 139c. lb. and buyers are waiting to see whether the needs of other countries, other than the U.S. will fill the gap which American abstention has created. Mr. Cleveland, president of the Pacific Tin Consolidated Corporation, who has just returned from an extended stay in Malaya, is reported as saying that "unless there is some relief in the near future, a decline in Malayan tin production is inevitable." A similar note was sounded by Mr. E. M. F. Ferguson, Chairman of the Straits Trading Co. at their annual meeting this week. He said that supplies of tin ore from Malaya, owing to the exhaustion of developed ground in the past 20 years, coupled with the lawlessness prevalent in the country, made it unlikely that there would be any increase in supplies in the foreseeable future. Malayan production for the first four months of the year is already about 500 tons at 18,523 tons compared 19,030 tons a year ago.

The new chief of the military Junta in Bolivia, General Hugo Ballivian, which, as mentioned last week, took control of the Bolivian Government, in a proclamation has stated that his government would control the country's mineral resources, which would be used for the public, and in projects for the progress and development of the country. The former president, Señor M. Uriolagoitia is reported to have left the country. The new government is believed to be anti-Communist. Bolivian tin exports in March were lower at 2,131 tonnes making the total for the first quarter of the year 7,143 tonnes compared with 6,979 tonnes a year ago.

The Indonesian output in April is reported at 2,641 tons, making a total for the four months of 10,098 tons compared with 10,283 tons for the same period of last year, and from the Congo 1,025 tons.

Tin production in Malaya in April, 4,728 tons making the total production for the first four months 18,523 tons compared with 19,030 tons in the same period of last year. Imports of concentrates into the Straits in April were 790 tons: Thailand, 660; Burma, 107; miscellaneous, 23 tons.

Allocations of tin to the U.S. tinplate industry may be substantially reduced in the third quarter, though in the current quarter a large proportion of the output will be hot-dipped plate to meet the seasonal wet-food pack requirements. This situation adds up to increased efforts to conserve tin by methods of economy and substitution. Electrolytic tinplate continues to gain as compared with hot-dipped plate. Mill shipments for the first quarter of the year were 689,790 s.tons of electrolytic plate com-

pared with 408,194 s.tons of hot-dipped. Black plate shipments also increased very largely.

Discussions are still proceeding in Malaya regarding the proposed "freezing" of part of the proceeds of rubber and tin sales.

U.K. imports of tin in April were 856 tons (118 tons in March). Imports of concentrates were only 1,219 tons compared with 4,499 tons in March, of which Bolivia supplied 595 tons and Nigeria 500 tons.

**Zinc.**—With June supplies sold out in the United States there is a general struggle to obtain additional quantities of zinc, and there is increased demand for raids on the government stockpile for Defence Orders. The U.S. production in March was 63,094 tons, the best since May, 1944. The St. Joseph Lead Co. state that their Argentine subsidiary has been given leave by the Argentine Government to ship 10,000 s.tons of concentrates to the U.S.

U.K. imports of zinc in April were 6,737 tons (10,377 tons in March), of which Canada contributed 2,933 tons, U.S. 2,193 tons and Norway 1,000 tons. Total imports for the first four months have dropped to 33,294 tons against 41,277 tons a year ago.

**Asbestos.**—The May issue of *Asbestos* of Philadelphia reports that while production and employment during April continued high, there was some slackening in the wholesale and retail market, and that the fear of future shortages had subsided, at least temporarily. While production of *crudes* and *fibres* continues at peak levels, the demand already in excess of production continues to grow. Demand for all *asbestos textiles*, such as cloth, was heavy. Business in *brake linings* continues at a high level. Demand for *asbestos paper* has shown some slowing down, with backlogs being reduced. For *millboard*, sales are somewhat below producers' capacity. Prices for high-pressure *insulation material* are firm, with sales exceeding output, and for low-pressure material the seasonal drop has not affected prices. Restriction on new building operations and the weather have affected the *shingles* market temporarily. Prices of *cement pipe* are firm.

**Cadmium.**—The N.P.A. reports such success in its conservation programme of cadmium that substantial stockpiles have now been achieved and use restrictions can be modified. U.K. imports of cadmium in April were 103,697 lb. as compared with 102,999 lb. in March.

**Magnesium.**—A strict licensing system for primary magnesium and magnesium alloy is announced by the Ministry of Supply to come into force on June 11. The Ministry is endeavouring to increase supplies by means of long-term contracts overseas, and the domestic plants closed down after the war are to be reopened. The Ministry is again the sole seller of primary magnesium.

**Molybdenum.**—Arrivals of molybdenite concentrates improved in April to 2,027 cwt. compared with 921 cwt. in March.

**Sulphur.**—U.K. imports in April were 27,121 tons (27,779 tons in March). America supplied 24,200 tons but 2,721 tons came from other sources. Imports of pyrites were 23,189 tons against 14,808 tons in March.

**Titanium.**—Mr. Jess Larsen, United States General Services Administrator, has stated that the Government is planning the erection of a titanium production plant at a cost of \$15,000,000. He explained that the government had under consideration the purchase of titanium up to \$200,000,000. As the production of titanium was unattractive to private industry because of the high cost this meant that it will be more economical if the government built and operated its own plant than buy in the open market. Supplies of titanium are particularly required for the production of jet engines.

U.K. imports of ilmenite in April were 4,497 tons com-

pared with 4,200 tons in March.

**Tungsten.**—The wolfram market remains very quiet but prices are slightly firmer, and may be called 525-535 sh. per unit c.i.f. Our Portuguese Correspondent refers in another column to a recent decline in exports though production has increased, and it is thought in London that there are considerable stocks accumulating in Lisbon and Oporto. Were the recent additional export duty removed or reduced, in response to the representations which, he understands, are being pressed on the Portuguese administration, the way might be open for more buying from the United States.

The U.S. Administrator of the Defence Minerals Administration, Dr. James Boyd, recently announced a new domestic tungsten programme, including a five-year guaranteed price of \$63 per short ton unit. The ceiling price to-day is \$65 per unit. Dr. Boyd expressed the belief that with this assured "floor" over five years, they could hope for a U.S. production of \$200,000,000 worth of tungsten concentrates.

U.K. imports of tungsten ores in April were 451 tons (250 in March). Portuguese shipments recovered to 270 tons.

## The London Metal Market

(From Our Metal Exchange Correspondent)

Once again there has been no features in the tin market, and even the trend has now become obscured. Consumer business continues at a normal level, and some re-shipments of Straits tin from this country to Europe have taken place. In America the R.F.C. continues to supply tin at \$1.39 per lb., but purchases have been only moderate, and industry appears to be drawing on its own stocks.

In other metals the scarcity continues all over the world, and more and more governments are putting on either price restrictions or end-use restrictions or both. One of the main features of this interference seems to be that the planners do not fully appreciate the part played in the metal trade by scrap, as in a number of cases the regulations have had the effect that scrap has ceased flowing normally, thus adding to the difficulties created by the scarcities of new metals. The general tendency appears to be in an upward direction with copper valued at about £450 per ton, g.o.b. zinc at £325 per ton, and virgin lead at £215 per ton, all c.i.f. Continent.

On Thursday the official close on the tin market was: Settlement price £1,130, Cash Buyers £1,120, Sellers £1,130; Three months' Buyers £1,105, Sellers £1,110. In the afternoon the market was steady. Turnover for the day was 20 tons. Approximate turnover for the week was 255 tons.

The Eastern price on Thursday morning was equivalent to £1,141 5s. per ton c.i.f. Europe.

## Iron and Steel

More serious consequences of the lack of raw materials—world wide in its incidence—are now beginning to emerge. This week all the smelting furnaces of the Colville group, the biggest steel producers in Scotland, have been laid idle owing to the shortage of steel scrap and in Sheffield a fifth steel furnace has also ceased to operate. In both instances the evil day has been deferred to the last possible moment, but there is no help for it. Iron ore shipments are on a slightly better scale, and progressive improvement is possible, but stocks of scrap are rapidly disappearing and it will take some time to restore pig iron production to normal levels.

This shortage of raw materials is making it increasingly difficult for the steel makers to honour their commitments. They have recently received a substantial volume of orders for re-armament and this necessarily imposes serious checks

upon civilian output. There will be less steel available for important industries at home and also for export.

Moreover, a very steep rise in prices cannot be much longer delayed. The price schedules have not been revised since the ten per cent advance in railway rates was imposed. That extra charge, however, is a small item in comparison with the inflation of the freight market. With Mediterranean ore freights increasing up to 60s. per ton, it is obvious that the current level of iron and steel prices bears no relation to actual costs of production and a rise of as much as £3 per ton for finished steel prices is forecast.

With this in prospect consumers are doubly anxious to acquire supplies before the rise, but makers are able to discourage speculative buying and in fact have had to curtail their normal deliveries. Exports last month exceeded those of any month this year, but controls are now in operation and are intended to restrict shipments to all overseas destinations.

Exports of scrap are also prohibited and it is understood that the Ministry of Transport has been asked to devise new regulations which will prevent the sale abroad of British merchant ships which are now being acquired for their scrap value.

#### MAY 24 PRICES

##### COPPER

Electrolytic... .. £234 0 0 d/d

##### TIN

(See Metal Notes above for Thursday's Metal Exchange prices)

##### LEAD

Soft foreign, duty paid ... .. £160 0 0 d/d

Soft empire, including secondary lead ... .. £160 0 0 d/d

English lead ... .. £161 10 0 d/d

##### ZINC

G.O.B. spelter, foreign, duty paid ... .. £160 0 0 d/d

G.O.B. spelter, domestic ... .. £160 0 0 d/d

Electrolytic and refined zinc ... .. £164 0 0 d/d

##### ANTIMONY

English (99%) delivered,

10 cwt. and over ... .. £390 per ton

Crude, (70%) ... .. £305 per ton

##### NICKEL

99.5% (home trade)... .. £406 per ton

##### OTHER METALS

Aluminium, £124 per ton.

Bismuth, 22s. 6d. lb.

Cadmium, 18s. 3d. lb.

Chromium, 5s. 3d. lb.

Cobalt, 15s. 6d. lb.

Gold, 248s. f.oz.

Iridium, £65 oz. nom.

Magnesium, 1s. 6d. - 2s. lb.

according to quantity.

Osmiridium, £35 oz. nom.

Osmium, £70 oz. nom.

Palladium, £8 10s. oz.

Palladium (scrap), £8 oz.

Platinum, £27/£33 5s. nom.

Rhodium, £45 oz.

Ruthenium, £30 oz.

Quicksilver, £73 10s./£74

ex-warehouse.

Selenium, 25s. nom. per lb.

Silver (bar), 78½d. f.oz. spot

and forward.

Tellurium, 19s. lb.

##### ORES, ALLOYS, ETC.

Bismuth ... .. 30% 11s. lb. c.i.f.

... .. 20% 8s. 6d.

##### Chrome Ore—

Rhodesian Metallurgical (lumpy) ... .. £11 per ton c.i.f.

" " (concentrates) ... .. £11 per ton c.i.f.

" " Refractory ... .. £10 12s. per ton c.i.f.

Baluchistan Metallurgical ... .. £11 11s. per ton c.i.f.

Magnetite, ground calcined ... .. £26 - £27 d/d

Magnetite, Raw ... .. £10 - £11 d/d

Manganese, Best Indian ... .. (Nominal)

Molybdenite (85% basis) ... .. (Nominal)

Wolfram (65%), U.K. ... .. 525s./535s. c.i.f. nom.

Tungsten Metal Powder ... .. 34s. 6d. nom. per lb. (home)

(for steel manufacture)

Ferro-tungsten ... .. 32s. 6d. nom. per lb. (home)

Carbide, 4-cwt. lots ... .. £30 3s. 9 d/d per ton

Ferro-manganese, home ... .. £36 1s. 1d. per ton

Ferro-manganese, export ... .. Nom.

Brass Wire ... .. 2s. 4½d.

Brass Tubes, solid drawn ... .. 1s. 10½d.

## Mining Men and Matters

**Mr. P. S. Hammond** has been appointed a director of Motapa Gold Mining in place of Mr. C. H. Dick, resigned.

**Mr. W. L. Morden** has resigned from the board of British Guiana Consolidated Goldfields.

**Kolar Gold Fields Administrative Changes.**—Consequent upon the transfer of the seat of management of The Mysore Gold Mining Co., The Champion Reef Gold Mines of India, The Ooregum Gold Mining Co. of India, and Nundydroog Mine from the United Kingdom to Mysore State, and the sale of their mining undertakings to companies incorporated in Mysore, Sir Charles Innes, Mr. A. d'A. Willis, Sir Arthur Lethian, Mr. T. Pryor and Mr. Hugh D. P. Francis have resigned their respective directorships, but will continue to act as members of the London Committees of the companies.

## Business Items

**Mr. John F. Alcock** has been appointed chairman and managing director of the Hunslet Engine Co.

**Mr. W. C. Handley** has been elected to the board of British Insulated Callender's Cables as an executive director.

**Mr. Frank Lonsdale** has resigned his position as general manager of Fraser & Chalmers Engineering Works, of the General Electric Co., Ltd., Erith, and has been succeeded by **Mr. A. L. G. Lindley**.

**Mr. H. McConchie** has been appointed manager of the new branch office of Newman Industries, Ltd., at Russell Chambers, 54, Merrion Street, Leeds.

**Mr. S. A. Mousley** has been appointed general sales manager of Dunlop's General Rubber Goods division in Manchester in place of **Mr. Walter White**, retired.

**Mr. R. C. Nater** has joined the engineering staff of the new Canadian factory of Messrs. Holman Bros. Ltd., at Hamilton, Ontario.

**Mr. H. L. Rouse** has been appointed a director of the Midland Bank and the Midland Bank Executor and Trustee Co. as from June 1, next.

The death is announced of **Mr. P. A. James**, vice-chairman of Wolverhampton Metal.

**Mr. J. A. Rowland** and **Mr. J. S. Mitchell** have been appointed to the board of Barrow Hepburn and Gale.

**Mr. G. Senior** has retired from his position of joint managing director of Richard Sutcliffe, Ltd., Universal Works, Horbury.

**Mr. W. Tuke** has retired from the board of Barclays Bank (Dominion, Colonial & Overseas).

**Joy-Sullivan, Ltd.** have opened a new factory at Cappielow Industrial Estate, Greenock, Scotland. The factory will eventually employ between 700 and 800 workers.

**L. M. Van Moppes & Sons (Diamond Tools) Ltd.**, advise that all publications and communications should be sent to them at Basingstoke, Hants. Tel.: Basingstoke 1240.

**G. E. Simm (Machinery), Ltd.**, East Parade, Sheffield, 1, announce that they have been appointed as sole sales representatives for the "Holset" range of flexible rubber block couplings, resilient gears, and hydraulic torsional vibration dampers as manufactured by W. C. Holmes & Co., Ltd., Huddersfield.

**David Brown Forms Canadian Subsidiary.**—Following on the formation last March of the David Brown Corporation, the formation is now announced of a new Canadian company, David Brown (Canada), Ltd. Based on Toronto, this new company will primarily be intended to supplement the existing agency coverage of the Corporation's gear manufacturing group.

**The Hunslet Engine Co.** exhibited a 100 h.p. 15 ton fully flameproof mines locomotive, equipped with Gardner engine and Hunslet four-speed transmission, at the American Mining Congress exposition at Cleveland. This is the first fully flameproof mines Diesel locomotive ever to be on show in the States.

**Chamberlain Industries Ltd.**, Staffa Road, London, E.10, announce that as a result of the great expansion of their export trade they have recently appointed agents for the U.S.A., Egypt, Italy, British West Africa, Tanganyika, Iran, Iraq and Turkey. General & Overseas Trading Corporation Ltd., 50, Gresham Street, London, E.C.2, will act as their agents for bending machines and other "Staffa" products, and will also deal with enquiries for the plant and steel divisions of Chamberlain Industries.







## Company News & Views

### Bonus Schemes of R.S.T., Mufulira and Roan

Shareholders in Rhodesian Selection Trust and Roan Antelope Copper Mines who may have been disappointed that the respective directors of these companies did not decide to emigrate to Northern Rhodesia last year, have had another pleasant surprise. It will be recalled that a few weeks ago both of these companies increased their interim dividends for their current fiscal years and that Mufulira Copper Mines, in which Rhodesian Selection Trust owns a 64 per cent interest, also declared a larger interim. Earlier this week these three companies announced that they were to capitalize about £10,000,000 of their reserves by the issue of scrip bonuses to their respective shareholders.

Roan Antelope Copper Mines proposes to issue four new Ordinary shares of 5s. each, credited as fully paid, for every five units of Ordinary stock or shares now in issue. Mufulira Copper Mines proposes to issue two new Ordinary shares of £1 each credited as fully paid, for every three shares in issue, and contingent upon this scheme going through, Rhodesian Selection Trust proposes to issue one new Ordinary share of 5s. credit as fully paid, for each share now in issue.

### I.C.I. Has Record Year

The consolidated sales of Imperial Chemical Industries at £220,800,000 for 1950 was the highest value ever attained in the Company's history. Exports reached the record figure of £48,400,000, an increase in value of more than 25 per cent in 1949, and an increase in total volume of 19 per cent. A substantial part of the increase in export was shipped to dollar countries, especially the United States of America, Canada, and Mexico, and exports to the dollar area increased from \$U.S.3,653,000 in 1949 to \$13,580,000 in 1950.

The year was notable for record outputs of many of the company's products, the Directors state, and the benefits are now being felt of the production from the new plants and extensions built under the company's post-war capital construction programme, a number of which came into operation for the first time during the year under review. However, the directors have added the warning that another important, but unfavourable feature which will have an increasing effect in 1951 is the shortage of raw materials which developed in the latter part of 1950 as the result of rearmament and stockpiling.

The consolidated profit and loss accounts disclose that manufacturing and trading profit amounted to £28,922,334 compared with £15,830,493 in 1949. This figure is all the more impressive when it is seen that it was struck after providing £8,694,823 for depreciation (£6,660,622) and pensions amounting to £4,011,343 (£2,771,383). After deducting interest and adding in revenue from various sources, consolidated income before taxation totalled no less than £31,018,457 compared with £17,323,509 for the previous year. The directors state that the increase of £13,694,948 over 1949 was almost wholly due to the increase both in volume and monetary value of turnover during 1950.

Factors which contributed to this increase were, firstly the benefit of certain higher prices which operated from early in 1950 and counteracted the higher cost of production which in the previous year had reduced profits considerably. Secondly, during 1950 overseas sales realizations benefited greatly from the results of sterling devaluation and, thirdly, the company's heavy post-war capital expenditure has begun to show marked results by affording higher productive capacity both of existing and new products. After making full provision for taxation,

consolidated income was £18,562,765 against £10,826,681 in 1949. Deducting appropriation by subsidiaries to reserve for deferred income tax liability due to initial allowances and for minority dividends and undistributed income of subsidiaries, the company's net income was £16,843,912 for 1950 against £9,791,503 for 1949.

From the £21,172,161 (£13,800,938) available, the sum of £11,960,000 was transferred to reserves and after paying dividends on the Ordinary Stock totalling 12 per cent and meeting payments on the 7 per cent Cumulative Preference Stock, the balance carried forward amounted to £4,424,588 compared with £4,328,249 carried forward in 1949.

### Anglo American Investment's Portfolio Changes

Gross revenue of the Anglo American Investment Trust for the calendar year 1950 totalled £1,862,328 against £1,194,831, an increase of no less than £667,397. Profit for the year amounted to £1,838,159 against £1,168,931. Taxation absorbed £120,000 (£110,000), general reserve received £750,000 against £500,000, and dividend payments aggregated 35 per cent (30 per cent), which took £875,000, leaving an amount of £294,833 to be carried forward compared with £201,674.

The balance sheet at December 31 last, recorded investments of £5,289,247 (£4,502,336), but the market valuation at the same date was £14,098,938 compared with £9,950,369 previously.

During the year the company disposed of its holding of the company's investments. Additional shares in Consolidated African Selection Trust were added to its portfolio, and the company now holds 959,826 shares in that company. However, the Trust's most important holding is in De Beers Consolidated Mines, which was increased by 227,720 to 3,108,343 shares.

During the year the company disposed of its holding of Preference shares in Consolidated Diamond Mines of South-West Africa.

### "Ofsits" Adds to its Investments

Anglo American Corporation's principal instrument in the financing and creation of its Orange Free State gold mines is the Orange Free State Investment Trust, which is more familiarly known as "Ofsits." During the year 1950, the Trust's revenue, less loss on share dealings and amounts written off, totalled £40,902, against £41,173. After providing for general administration expenses, the carry forward was £122,955 against £107,889.

The balance sheet as at December 31, 1950, showed that the general reserve had been increased by £2,500,000 to £5,750,000. This additional increase represents the premium of £2 10s. per share received on the 1,000,000 shares issued during the year at £3 per share, the total issued capital now being £4,000,000 against £3,500,000 previously. Shares and other interests of "Ofsits," at cost, less amounts written off, are recorded in the balance sheet at £8,628,669 against £6,123,427 a year ago. The market value of these investments, where available, and directors' valuation (but not above cost) in other cases, figured at £18,888,123 compared with £22,530,438 in 1949.

During the year the company subscribed for in cash at par for 2,509 shares in the initially issued capital of Harmony Gold Mining Co. by December 31 last, and since that time it has received as its share of the vendor consideration, an amount of £24,423 which has been applied in the subscription at par for 97,692 shares of 5s. each. In addition, the company has subscribed in cash at par for the balance of 460,941 shares in Harmony Gold Mining to which it was entitled.

During 1950 and since the end of the year, the company has taken up new issues by virtue of its holding in Freddie South, Freddie North, Free State Geduld,

Orange Free State Land and Estate Co. (Pty.), President Steyn, and Welkom Gold Mining. Further it has exercised subscription rights in respect of Loraine Gold Mines, Jeannette Gold Mines and Merriespruit (O.F.S.) Gold Mining, in addition to its subscription in Harmony Gold Mining mentioned above.

### Rio Tinto's Difficulties

The directors of Rio Tinto in their report accompanying the accounts for the year ended December 31, 1950, state that the result of the company's operations in Spain for the period under review, was very disappointing. In view of the world shortage of sulphur bearing materials and consequently of a keen demand for pyrites, the above statement needs some clarification. The chief reason is that the company is not permitted by the Spanish authorities to retain the foreign currency received from its pyrites exports, but is compelled to transfer to Spain for conversion into pesetas, but a very small proportion. Thus, although the company is producing pyrites at a peseta profit, this is immediately converted into a sterling loss by the Spanish exchange regulations. However, shareholders will receive some satisfaction in the raising of the dividend to 12½ per cent, tax free, compared with 10 per cent for the preceding year. This has been made possible by the considerable increase in income from and the market valuation of the company's Rhodesian investments.

Now that hopes are rapidly vanishing of the company being able to revive its Spanish interests, Rio Tinto will, in the future be viewed as a Rhodesian copper investment house, together with whatever additional prospects arise from their search for new mining ventures in Africa.

### St. John D'el Rey's Development Programme

Formed in 1830 and owning 130 square miles of properties in the State of Minas Geraes, Brazil, St. John D'el Rey Mining Co. showed a working profit from its gold and silver mining operations of £370,329 for the year 1950, against £197,379. After providing for administration expenses and £212,993 for taxation, the net profit was £137,722 against £152,941. Contingencies reserve received £68,218 against £24,449, dividend payments totalling 2s. per £1 stock, making 10 per cent net for the year, absorbing £54,626 and after meeting the payments on the 10 per cent Preference stock, free of income tax, the carry forward amounted to £55,091 compared with £50,213 a year ago.

Following an examination of a report by experts on the company's mining and metallurgical problems, it has been decided to adopt a development programme with the object of attaining greatly increased production. This programme will involve heavy capital expenditure, and although the Board are of the opinion that the major portion of this programme can be financed out of profits and other resources of the company, they feel it advisable to further strengthen its position by the issue of the remaining unissued capital of the company. Therefore, Ordinary stockholders are to be given the opportunity of subscribing to a rights issue on the basis of one £1 Ordinary share for every £14 Ordinary stock held on May 21. The price of the new shares, which will rank for dividends in respect of the year 1951 on an equal basis with the existing stock will be 25s.

During the year, the tonnage crushed increased by 41,100 to 370,000 tons.

No difficulty was experienced during the year with regard to the disposal of the company's gold. Sales during the year were effected in the same ratio as that which ruled a year ago, namely, 80 per cent of production for free sale, and 20 per cent to the Bank of Brazil.

### G.C. Main Reef's Disappointing Results

The report and accounts of Gold Coast Main Reef for the year ended June 30, 1950 reveal a marked decrease in tonnage and drop in grade, the relevant figures being 97,944 tons milled, with a head value of 6.786 dwt. per ton, against 115,116 tons with a head value of 8.771 dwt. per ton. The decreased tonnage crushed was due to a combination of two circumstances. Firstly, a diminution in the size of blocks available for mining; secondly, a shortage of labour which affected the company more than any other in the Colony, owing to its location being at the extreme end of the labour supply route. The reduction in grade was mainly due to the exhaustion of some of the richest blocks being mined last year and the necessity to mine through low-grade blocks in the unavoidable sequence of stoping. These adverse features, taken together, were solely responsible for an increase in working costs of 10s. 3d. to 60s. 3d. per ton. Development work carried out during the year was severely handicapped by the labour shortage. Shaft sinking was also handicapped at the beginning of the period by persistent pumping troubles, but once these were overcome, steady progress was made both in the Main shaft and in the Tuappim internal shaft.

Disappointing as the above figures may be, plant performances since the end of the fiscal year indicate that the corner has now been turned, and that both the grade and tonnage of ore milled will henceforth be on a more satisfactory basis. A particularly helpful factor since the end of the company's fiscal year has been the improved labour strength made possible by the welfare centre which the Gold Coast Selection group of companies established in the Northern Territories early in 1950.

Another feature which has contributed to the increased efficiency in mining operations has been a system of labour control. This involves a fixed quota of labour for each working place such as in stopes and development headings which must not be exceeded and a bonus system introduced for those employed underground on a strict basis of payments by results.

The total ore reserves have been well maintained and at June 30, 1950, were estimated at 366,601 tons of an average value of 8.92 dwt. per ton over 65.9 in.—a decrease of 7.909 tons, but an increase of .019 dwt. per ton in grade.

The profit for the year amounted to £9,937 (£53,616). Although this figure represents only about 2½ per cent, a dividend of 5 per cent, less tax, was declared, the balance being made up from the profit and loss credit carry forward which, after this adjustment, stood at £10,045 compared with £30,753 previously.

### U. Tin Areas of Nigeria Pays 7½ Per cent

Although the output of tin concentrates of United Tin Areas of Nigeria for the year ended June 30, 1950, was some 10 tons lower at 110 tons, working costs higher by £92 over the previous year, these deficiencies were offset by the higher price the company obtained for its tin, which averaged £675 18s. 4d. per ton, which compares with £532 per ton received during 1949.

Gross earnings for the year amounted to £57,435 (£47,558), and after meeting all expenses profit before tax was £13,023 against £5,593 previously. The dividend payment of 7½ per cent (6 per cent) absorbed £5,906, taxation called for £4,805, and the balance of expenditure written off prospecting amounted to £6,954, leaving the forward balance lower at £13,935 compared with £18,577 previously.

The company's investments consist mainly of holdings in the Nigerian Lead/Zinc areas, and in the Limni pyrites property in Cyprus. At present, the company's shareholding in the Esperanza Copper & Sulphur Co. is valued at some £120,000.

## Company Shorts

**Gold Coast Selection Trust's Group Quarterlies.**—The Gold Coast Selection group of quarterly reports for March have now been published, and it is announced that the ropeway from Tamsoo to the Central Mill on the Amalgamated Banket Areas property is nearing completion, and that transportation of ore is expected to commence next month. In this connection it is also stated that for the first few months a stockpile of low-grade development ore will be treated. This company also announces that one of the high-grade stopes in the Abbontiakoon section has been worked out, and the second is yielding a reduced tonnage. In consequence, gold production which has been abnormally high for some months past, will gradually return to more average values.

The figures in brackets refer to the December quarterly figures.

	Mar. qtr.	Dec. qtr.	Mar. qtr.	Dec. qtr.
	Profit £		Output f.oz.	
Amal. Banket.....	130,047	(134,610)	25,070	(24,266)
Ariston.....	136,092	(149,964)	25,512	(25,834)
Bremang.....	62,558	(60,433)	10,498	(10,843)
G.C. Main Reef.....	36,812	(19,976)	8,770	(7,063)
Marlu.....	53,098	(8,969)	13,447	(9,379)

The results exclude development redemption and gold duty, where appropriate.

In the December quarter, Marlu's profits were affected adversely by mechanical breakdowns and other factors, which have now been mostly overcome.

**Apex Mines Record Output.**—The report and accounts of Apex Mines for the calendar year 1950 states that the sales output of its Greenside Colliery was £1,034,502 tons compared with 1,020,891 tons in 1941, a new output record in the company's history. Profit for the year totalled £171,605 against £167,229, to which was added £80,623 brought in and the sum of £125 received from the sale of an asset previously written off, making £282,353 available. Two dividend payments aggregating 45 per cent (same) absorbed £67,500, taxation called for £35,999. Reserve for redemption of Preference share capital received £7,500, and funds transferred for capital expenditure appropriated £19,760 against £41,349 previously. The cost of recovery and disposal of assets formerly belonging to Apex Colliery took £2,340, and after meeting payments due on the company's 375,000 5½ per cent Redeemable Cumulative Preference shares of £1 each, the balance to be carried forward stood at £98,630 compared with £80,623 a year ago.

**Nigerian Consolidated Mines.**—For the year ended March 31, 1950, this company's tin concentrate production amounted to 83.32 tons averaging 71.88 per cent tin, as compared with 87.68 tons for the previous twelve months. Working costs rose steeply to £363 per ton of concentrate, an increase of £103 over the previous year. Profit for the year was £1,707 against £8,487. Mr. L. C. Walker, the chairman, stated that the company had reached a position where, if actual losses were to be avoided the mine must be closed down. In consequence an offer was accepted for the outright sale of the company's properties for the cash sum of £25,000. The company retains its shareholdings in Mines Development Syndicate (West Africa) Ltd., and in the Limni Property in Cyprus, as well as retaining certain recently pegged prospecting leases.

The board is confident that the company's two investments will earn substantial revenue within the next year or so, which, it is expected, will enable dividend payments to be resumed.

## EAST GEDULD MINES, LTD.

### MR. P. M. ANDERSON'S REVIEW

#### INCREASED PROFIT

Mr. P. M. Anderson, the Chairman of the company, in addressing stockholders at the Annual General Meeting held at Johannesburg on May 8, 1951, said:

The ore milled at 1,738,000 tons was 16,000 tons less than in 1949, and the yield was unchanged at 5.99 dwt. so that the output of gold at 520,952 f.oz. was slightly lower than in the previous year. As a result of receiving the increased price of gold over the full year, however, the working revenue rose by £1,440,312 to the record figure of £6,601,982. Included in the working revenue is an amount of £97,578, being your company's proportion of the additional revenue which was secured by the industry during the year from sales of gold at enhanced prices for industrial and artistic purposes. Working costs at £2,096,967 increased by 3s. 8d. per ton milled and the working profit at £4,505,015 rose by £1,146,124.

He stated that dividend income from the holding of 537,600 stock units in the Grootvlei Proprietary Mines, Ltd., which remained unchanged, and the balance of sundry revenue over sundry expenditure brought the total profit to £4,593,286 being £1,201,616 more than for 1949. Provision for taxation increased by £718,997 to £2,330,350. The net profit was £2,254,458 or £480,102 higher than the 1949 figure. Dividends totalling 4s. 7½d. per unit of stock were declared as compared with 3s. 3½d. the previous year and absorbed £2,081,250. After providing £112,320 for capital expenditure and setting aside the other amounts detailed in the Appropriation Account, the carry forward was increased by £51,615 to £493,380.

Of the increase in working costs of 3s. 8d. per ton only 11d. had been brought about by the revised accounting procedure for dealing with various silicosis charges, the balance being due to the higher cost of labour and to the rise in prices of commodities.

A total of 17,496 ft. of development was accomplished on Main Reef of which 10,440 ft. were on reef and sampled disclosing 6,750 ft. or 65 per cent payable with an average value of 11.8 dwt. over 24 in. In addition 2,842 ft. of development on the Kimberley Reef Horizon completed the crosscut from No. 1 Shaft to the position of the new sub-vertical shaft and a start had been made on shaft-sinking. No payable values had been disclosed in the course of this Kimberley Reef development.

#### ORE RESERVE POSITION

The ore reserve recalculated at the year-end was unchanged at 12,500,000 tons. The value increased by 0.3 dwt. to 5.7 dwt. and the estimated stoping width at 51 in. was 3 in. less.

The Minister of Finance had restored the Formula Tax to the 1948 level, the effect being to increase the rate of taxation by approximately 5 per cent as from January 1, 1951.

During the first quarter of 1951 the ore milled was 424,000 tons and the working profit was £1,034,888. In addition £92,213 accrued to the company from premium gold sales. Development work on Main Reef totalled 1,734 ft. and of this 895 ft. were sampled disclosing 450 ft. or 50 per cent payable with an average value of 9.2 dwt. over 24 in. 528 ft. of development were accomplished on Kimberley Reef but no payable values were disclosed.

The motion for the adoption of the Reports and Accounts was carried unanimously and the retiring Directors, Messrs. J. MacG. Love and T. P. Stratton, were re-elected.

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## ST. HELENA GOLD MINES, LTD.

### MR. P. M. ANDERSON'S REVIEW

Mr. P. M. Anderson, the Chairman of the company, in addressing shareholders at the Annual General Meeting held at Johannesburg on May 8, 1951 said:

The work done on your company's property during the year under review, of which full particulars appear in the Reports of the Directors and the Consulting Engineers, has consisted of the erection of the reduction plant and additional surface works and buildings, as well as the completion of sinking No. 4 Shaft and carrying on underground development.

He stated that early in 1950 No. 4 Vertical Shaft reached its final depth of 2,938 ft. and the permanent shaft equipment had now been installed. Some work still remained to be done to complete station cutting, the ore pass system, and the main pump chamber and sumps.

From No. 3 Shaft 12,406 ft. of development was accomplished during the year, of which 3,865 ft. were on Basal Reef and sampled disclosing 2,595 ft. or 67 per cent payable, having an average value of 13.0 dwt. over a width of 25 in. Development was again severely retarded by the intersection of water-bearing fissures necessitating repeated and some times prolonged stoppages for cementation.

As a result of these delays development work had not progressed sufficiently to enable the reduction plant, capacity about 80,000 tons per month, to be supplied by the middle of this year with ore on the scale of approximately 50,000 tons per month as previously anticipated. Milling of ore from the surface dump and current development would start on a small scale within the next month or two to run in the plant. The scale of operations would be gradually increased and it was hoped to reach a rate of about 50,000 tons per month in October, by which time ore from stopes should begin to replace low-grade ore from dump, but much would depend on speeding up the development work. It was unlikely that there would be any output to publish before the end of October and it might take a considerable time before the mine reached full milling capacity.

### DEVELOPMENT WORK

The delays to the development work and the delay in reaching a substantial scale of milling had increased the cost of bringing the mine to production. In addition St. Helena had felt the full impact of the steady rise in the cost of plant, equipment, stores and materials since devaluation. Expenditure to the year-end totalled £6,158,665 leaving a balance of cash and cash assets less liabilities of £1,383,835, of which a considerable sum was tied up in stores and materials. Capital expenditure during the first quarter of 1951 amounted to £627,132. It was clear that further finance would be required to cover the cost of bringing the mine to full production, of completing the necessary surface works and doing further development, and to tide the company over the period when, through absorption of gold and teething troubles, the plant could not be expected to show normal results.

### FINANCE

The South African Mutual Life Assurance Society had agreed to make a second loan to the company amounting to £400,000 on the security of the additional houses built by the company since the former loan of £375,000 was granted in 1948. The new loan would bear interest at 5 per cent per annum and would be repayable in equal annual instalments of £20,000.

In addition, however, the Consulting Engineers estimated that further funds of the order of £1,000,000 were required and the Chairman stated that he was pleased to announce that Union Corporation, Ltd. had offered to advance this sum as a temporary loan bearing interest at 5 per cent per annum and subject to a raising fee of 1 per cent. The Directors had accepted this offer as being the most appropriate way of financing the company at this stage.

During the first four months of 1951 the total footage driven was 6,878 ft. On the Basal Reef 3,285 ft. were sampled and 1,380 ft., or 42 per cent proved payable, averaging 26.3 dwt. over 17 in.

The Chairman stated as a matter of interest to shareholders that from the commencement of operations to the end of April, 1951, the total development footage carried out by the company was 41,551 ft. of which 15,330 ft. were on Basal Reef and sampled disclosing 7,595 ft. or 50 per cent payable with an average value of 17.0 dwt. over 19 in. He said that while the footage completed was not nearly as great as hoped for, the percentage payability and the value gave good grounds for encouragement.

The motion for the adoption of the Reports and Balance Sheet was carried unanimously and the retiring Directors, Messrs. P. M. Anderson, J. Boyd and S. R. Fleischer, C.B.E., D.S.O., M.C., were re-elected.

## KONONGO GOLD MINES

The Seventeenth Annual General Meeting of Konongo Gold Mines, Ltd., was held on May 24 at the Chartered Insurance Institute, London, E.C.

Mr. Robert Annan, M.I.M.M., Chairman of the company, presided and in the course of his speech said:

The working profit at £192,679 shows an increase of £68,170 over the previous year. Against this there is a charge of £104,500 for taxation, compared with £56,000 for last year which was further reduced by £43,450 previously over-provided, making a total difference of £91,950 in the charge for taxation in the two years.

After providing for depreciation, etc., and bringing in the unappropriated profit from the previous account, the balance available is £123,890, which compares with £138,738, the additional working profit being more than offset by the higher provision for taxation.

Operations at the property continued without interruptions during the year. The mill treated 84,826 tons of ore, of which 50,461 tons yielding 32,805 oz. were from our own property, the balance of 34,365 tons being treated for Lyndhurst.

In the first seven months of the current financial year, 26,000 tons of ore have been milled, producing 17,312 oz. of gold and yielding an operating profit before depreciation and taxation of £71,402.

The ore-reserves at September 30, 1950, amounted to 161,538 tons, averaging 12.3 dwt. per ton. This is a decrease of 23,938 tons from the previous year.

Development footage for the year amounted to 4,444 ft., an increase of 566 ft. The principal points of interest were the development of the main Odumase ore-shoot in depth and the exploration of the Odumase vein south-west from the boundary with the Boabedro workings on the Lyndhurst property.

The results in the former area have continued to be most disappointing. Since the end of the financial year the vein has been reached on the 20th Level, but while the fissure still persists there has been no ore exposed in the 631 ft. of driving and 253 ft. of cross-cutting done to date.

In the Boabedro workings the 8th Level passed through an ore-shoot in the Lyndhurst property, and after having been driven 730 ft. in Konongo ground has shown only one or two isolated patches of ore. The 9th Level, however, ran into ore when it had advanced 10 ft. into Konongo ground and has since exposed 380 ft. of ore averaging 23.7 dwt. over 58 in.

The failure of the main Odumase ore body in depth has very serious implications for the future of the mine and it will be some time before the importance of the Boabedro ore-shoot which is now, in effect, only exposed on one level, can be assessed. In these circumstances your directors felt that it was desirable that a fresh study should be made of the geology of the property in the light of recent developments and this has now been made by Mr. R. F. Playter, a geologist of the Gold Fields' group, who has had wide experience in gold deposits of this type. Put in as simple terms as possible, he believes that, of the steeply dipping rock strata in which the veins occur, some beds are favourable to the formation of open fissures in which ore can be deposited. Others are softer and in them the fissures tend to close, leaving no locus for the deposition of ore. The main lines of fissuring intersect these strata, both in their horizontal extension and in depth, at a small angle, thus tending to pass gradually from one stratum into another.

It now seems probable that the Odumase workings were in favourable ground down to about the 9th Level and are now in unfavourable formation. We shall, of course, complete development of the 20th Level and if results are still negative we shall sink no further at present. The areas in which development is intended are:

The 8th Level, Boabedro will be extended south-west to connect with the 9th Level north-east from Odumase to prospect the gap of about 1,250 ft. which still exists between these workings. The 9th Level, Odumase will be extended 1,200 ft. south-west to the Lyndhurst boundary on this side of the property beyond which there are some surface prospects in Lyndhurst ground now being tested by drilling.

The 5th Level, Akyenase will be extended north-east to the Lyndhurst boundary to explore the remaining undeveloped section of this vein. Some diamond drill holes will be put out from the 20th Level, Odumase to intersect the Zongo vein at this depth on the chance that it may there have reached the favourable beds in which the Akyenase vein made ore in the upper levels.

Shareholders will readily appreciate the necessity at this stage of maintaining the company in a strong financial position. Should we be unfortunate in the results of development we may at least hope that the resources which we are now retaining may escape the worst effects of the present penal taxation on distributed profits.

The report and accounts were adopted.



## ASHANTI GOLDFIELDS CORPORATION, LTD.

### CHAIRMAN REPORTS ENCOURAGING OUTLOOK MAJOR-GENERAL SIR EDWARD SPEARS' REVIEW

The Fifty-Fourth Annual General Meeting of the Ashanti Goldfields Corporation Ltd. was held in London on May 23. The Chairman, Major-General Sir Edward L. Spears, K.B.E., C.B., M.C., presiding said that in the period under review, progress and results had been satisfactory.

#### PROFIT AND LOSS ACCOUNT

Earnings had increased by £470,794 to £1,138,426. This was the first full year in which their gold had been realized at the higher price of 248s. per f.o.z. following devaluation. Although their gold had realized more since devaluation, costs had risen also and were still rising. He said last year that following devaluation they thought it just to increase the salaries of their Europeans and to raise the wages paid to their African workmen. He had warned also of rises in the cost of their principal consumable stores. Prices of all stores had increased and they were increasing further. Moreover they had to pay more for freight, passages and everything else. Indeed, while they had received the benefits of devaluation for a full year, its effect on the price of stores had not yet been fully felt in the year under review, so that the warning he gave last year applied with even greater force now than it did then.

#### PENSION SCHEME

They had had a Pension Fund for the European Staff since 1930 built up by annual appropriations from the Corporation's profits. This had provided simply for the payment of a pension on retirement. A number of their employees had received pensions under this scheme. It was felt that the provision of pensions only was not enough and an attempt should be made to safeguard the position of a man's dependants, should he not survive to the age of retirement. As a result, the rules of the Fund had been amended and it would now be administered side by side with a new Assurance Scheme.

#### DIVIDEND

On October 20, 1950, they had paid an Interim Dividend of 1s. per Unit of Stock less tax at 9s. in the £. After adding, as he had already explained, to the Fixed Assets Replacement and General Reserves, they felt able to recommend the payment of a Final Dividend of 1s. 6d. per Unit of Stock less tax at 9s. in the £, so that their total distribution for the year was 2s. 6d. per Unit.

#### WEST AFRICAN FINANCE CORPORATION

Since the date of the Accounts they had formed a new wholly-owned Private Company, and transferred to it their holdings in other West African Mining Companies. The total value of these holdings was considerable and as they were an operating company it had been felt that the administration of these shares would be easier if they were owned by a separate finance company. This company was registered on February 1, 1951, with an issued capital of £400,000 the whole of which is held by Ashanti Goldfields. The expense of the formation had been small and the current expenses of the new company would be light as it was to be managed by Ashanti Goldfields and no Directors' fees and salaries would be paid.

#### SHAFT SINKING AND DEVELOPMENT

The full extent of the pay-shoots on the new Level, No. 33, had not yet been proved. Only two further crosscuts were possible at the South end, but both had exposed good values, giving an average width of reef of 15 ft., valued at 20.0 dwt. per ton. To the north a distance of 450 ft. had been driven and payable ore had been recorded over 350 ft. Since the close of the Financial year the shoot had been shown to extend over more than 500 ft., but in view of the restricted capacity for development here, further work was being postponed in favour of the opening up of No. 35 Level which was now in hand.

Another development of interest and importance was the good values reported over 200 ft. on No. 27 Level which proved the upward extension of the most southerly pay-shoot previously located below. This added valuable tonnage to their ore reserves. The total new ore developed during the year, 187,864 tons, averaging 17.5 dwt. per ton, had been sufficient to maintain the reserves at a satisfactory level.

#### SURFACE PROSPECTING

Arrangements had been made with Selection Trust Ltd., in 1948 to examine part of the Company's mineral concession outside a reserved area with the object of seeking and, if encouragement had been forthcoming of developing new mines. This work had been carried on for two years without, however, producing results of any interest. It had been therefore agreed to discontinue further search and by mutual consent to terminate their agreement with Selection Trust Ltd. The Chairman said that he should like to take this opportunity of recording their appreciation of the excellent manner in which that company carried out the work and their regret that the effort was unsuccessful. He thought it important to add that the lack of result from this venture in no way whatever affects the future prospects of the existing Ashanti Mine.

## BIBIANI (1927) LTD.

### CHAIRMAN REPORTS INCREASED RESERVES

#### MAJOR-GENERAL SIR EDWARD SPEARS' ADDRESS

The Twenty-Fourth Annual General Meeting of Bibiani (1927) Ltd. was held in London on May 23. Major-General Sir Edward L. Spears, K.B.E., C.B., M.C., the Chairman, presided and said that the Profit and Loss Account showed the first full year's return from the sale of bullion at the higher price of 248s. per f.o.z. following devaluation. Unfortunately, their expenses had also risen and are still rising. Immediately after devaluation the industry raised the rates of wages and salaries for both African and European staff. Since then the cost of all the stores and materials that they buy had been continually increasing, and they had also to meet higher costs for freight, passages and all services. Their working costs had inevitably risen and they had already lost a large part of the advantage gained through the higher price of gold.

They had brought in to the credit of the Profit and Loss Account their claim of £23,500 under their insurance policies to cover loss of output as a result of the fire in the Power House. This sum had been agreed and had been paid in full, and he would like to record their appreciation of the friendly manner in which their insurers dealt with the claim.

No payment had to be made in respect of Gold Duty as the assessment was based on the results for the previous year which had not been good enough to attract Duty. For the current year to September, 1951, however, they had to pay Duty, the rate having been provisionally assessed at 6s. 6d. per f.o.z. At the present rate of working this charge would amount to about £2,000 a month.

#### DIVIDENDS

An Interim Dividend of 4.8d. per unit of Stock, less tax, had been paid on October 20, 1950. After transferring £25,000, as before, to the Fixed Assets Replacement Reserve and £60,000 to General Reserve, the Directors felt able to recommend a Final Dividend of 7.2d. per unit of Stock, less tax at 9s. in the £, making a total dividend for the year of 1s. per Unit. After paying this Dividend they were left with £5,497 to be added to the balance of profits carried forward.

#### OUTPUT

The year's work at the Mine had on the whole been encouraging. The tonnage milled, 333,422, was the highest in its history. The monthly rate of production had been increased to a level of 30,000 tons yielding an average of 6,200 oz. of gold. The additional tonnage had come mainly from the surface quarry. This was proving a valuable asset, the full extent of which was not yet proved, but which would be available for several years. The possible extension of this outcrop to the south of the Mine was now being examined but they had, as yet, no definite information of importance. Output from underground had been planned at the rate of 22,500 tons per month and this had been maintained steadily.

#### DEVELOPMENT CONTINUES

Development had been on the same scale as in the two previous years and of the 20,328 ft. achieved, approximately 12,000 ft. were for exploration. Results were mixed, as was usually the case in mining. Their hopes of continuing to expose good values in the East Reefs had not been fulfilled and No. 12 level had been disappointing. It was, however, to be remembered that from the point of view of tonnage this did not mean a great deal. On the other hand the larger ore body at the south end of the Mine had been proved to be of considerable interest on Nos. 16 and 17 levels and it was to this source that the addition of 173,000 tons of 5.3 dwt. ore to reserve was attributable. On neither levels had the full extent of the reef been proved and work was continuing at both horizons.

On the surface much had been accomplished. In particular the completion of the new reservoir and its pumping station had removed a source of anxiety, which had sometimes been acute, and ensured that an adequate water supply would be available at all times.

An unfortunate incident had occurred in June last when a fire had broken out in the Power Station. This had happened just after midnight when there had been few Europeans on duty at the Mine, but a very prompt response to the alarm and quick action by those present prevented the flames from spreading. The actual material damage done had not been of great consequence but it had naturally taken some time to repair and operations had been affected both underground and on the treatment plant.

Since the close of the financial year, work at the Mine had continued steadily. No. 16 level continued to show encouraging results as exploration continued southwards and the total length of payable ore was now over 500 ft. A mechanized shovel had been installed in the surface quarry and new drilling equipment was being provided to allow a slightly larger tonnage to be produced more easily and cheaply. The present rate of gold production was expected to be maintained.



## HONGKONG TIN IMPROVED RESULTS IN 1950-51

The Twenty-Second Annual General Meeting of Hongkong Tin, Ltd. was held on May 17 in London.

Mr. Jack Addinsell, the Chairman, in the course of his statement said the mine staff had endured another year of constant stress arising from the security position. Stockholders would wish him again to record their admiration of the steadfastness and good work of the staff at the mine and of the general managers, Messrs. Osborne and Chappell.

In the past financial year three months were spent in preparation of a paddock for the treatment of rich ground below maximum bucket dredging depth. During that time production was small, which, combined with the lower grade of ground worked, made the year's output 424½ tons of tin ore, against 930½ tons in 1948-49. The recent phenomenal rise in price did not materially affect the average received in the year. The profit of £49,287 was therefore satisfactory in view of the difficult work carried out. Taxation absorbed £36,530, and in addition the Malayan Government received £28,395 in royalty and tin duty. Dividends totalling 25 per cent for the year had been paid and £47,438, compared with £53,707, was carried forward.

The syndicate formed by companies of the principal Malayan groups to investigate grab dredging for mining irregular and deep deposits of tin ore had been liquidated, and a new syndicate, with new and improved plant, would carry out the tests—on the Hongkong property, as originally intended. Practical data of great value were confidently expected. If the tests were successful there would be particular financial benefit.

The commissioners had assessed the company's war damage at £70,887—only a part of their losses—but appeal would serve no useful purpose. The first payment, £42,532, had been offset against the Government's advance of £61,299 for rehabilitation, on which £83,564 had been spent.

Plans had been prepared for the clay treatment plant and additions to the dredge, essential to prolong the life of the mine and permit efficient recovery of both very fine and exceptionally coarse ore. The estimated cost was £120,000. It was anticipated that the new plant would be on the site in 1953.

The first six months of the current financial year had shown very satisfactory results, owing to improved returns, which amounted to 203 tons of tin ore, sold at a high price.

At the meeting the Chairman announced an interim dividend of 10 per cent, less income tax, on account of 1950-51.

## BRITISH ROPES ALL-TIME SALES RECORD MR. HERBERT SMITH'S SPEECH

The Twenty-Ninth Annual General Meeting of British Ropes Ltd. was held on May 24 in London.

Mr. Herbert Smith (Chairman and Managing Director) in the course of his speech, said:

When I addressed you last year I stated that we were entering upon more difficult times but that the current year ought to see your company's output maintained; during the earlier months of the year there was a steady decline in the sales tonnage, and there was every appearance that the results for the year would fall well below those of the previous year both from a profit and sales standpoint. However, towards the end of the year production and sales bounded to a very high level, and both in tonnage and value our sales exceeded the record high level of 1949, although it should be added that a factor contributing towards this all-time record of sales value has been the continued rise in raw material costs.

The consolidated profit and loss account shows a total trading profit for the year under review of £1,613,000, as against £1,162,000 for the previous year. The net dividends paid and proposed to be paid account for £196,000—that is 31.36 per cent of the net profit available for the year. No less than £429,000—68.64 per cent of the net profits earned—has been ploughed back into your company, £250,000 by way of transfer to general reserve and £179,000 by an increase in the balance on profit and loss account, which brings the capital and revenue reserves of the group to a figure slightly below £2,000,000.

Present indications are that shortages of steel will hamper our activities during this year; this is already apparent in the month of May, and is likely to continue during the remainder of the year. It is too early to forecast how the company will be affected, but our products are needed in any rearmament programme, in addition to normal peace-time requirements.

Our total exports showed considerable progress. They were 20 per cent greater in volume, as compared with the previous year, chiefly owing to the increase in shipments of wire. The volume of exports represented 19 per cent of the company's total sales as compared with 17 per cent in 1949, but despite a higher rate of demand it seems unlikely that we shall be able to maintain this volume in 1951 as restrictions in the supply of raw materials will limit the quantities which we shall be allowed to export.

The report was adopted.

## BRITISH INSULATED CALLENDER'S CABLES YEAR OF GREAT CONTRAST CRIPPLING TAXATION BURDEN

The Sixth Annual General Meeting of British Insulated Calender's Cables Ltd. will be held on June 14 at Liverpool.

The following is an extract from the statement circulated by the Chairman, Sir Alexander Roger, K.C.I.E.:

1950 was a year of great contrast. Last June the immediate outlook was not so assured as it had been a year previously, mainly due to the cuts imposed by our Government on the capital expenditure of our principal customer groups in this country, and to the increasing, and in some cases fierce, international competition being experienced in certain overseas territories. These factors seriously affected certain of our activities during the first half of the year, but for the remainder of 1950 our production facilities in practically all Divisions were stretched almost to the limit. The net result is that profit on trading fell by £255,250 although it still reached the satisfactory figure of £3,233,039.

Depreciation on Fixed Assets shows little change. The rates being applied are adequate to write off existing fixed assets by the end of their anticipated useful life, but I must again emphasize strongly that the amount set aside is inadequate to provide for the replacement of our fixed assets at anything approaching present prices. The problem up to the time of the amalgamation is adequately covered by our Capital Reserves, but the deficiency since is substantial and a further justification, if any were necessary, for the continued building up of our Revenue Reserves and the retention in the business of as much of our net earnings as possible.

The experience of several of the units in the Group has been similar to that of the Parent Company, but in others operating in different fields a consistently high level of activity was maintained throughout the year and a further improvement was shown on the 1949 results.

### TAXATION

In total, however, Group profit on trading has fallen by £607,622 to £6,130,642. In spite of this, due to higher rates, taxation absorbs the wholly disproportionate and crippling figure of £2,945,201. It is clear beyond any doubt that the present crippling burden of taxation cannot be continued if industry in this country is to remain competitive in the world markets. There are able men in other countries planning and working all the time to improve their productivity and efficiency and they are not being penalised from doing so to anything like the extent we are by taxation or rules and regulations.

Since the amalgamation in the Parent Company, we have had to pay or reserve out of profits no less than £9,000,000 for taxation.

Whilst we all support the building up of the defences of this country, I, for one, am far from being convinced that this need have necessitated any increase in taxation if the Government had resolutely effected economies in their alarming rate of peace-time expenditure.

Instead of pretending the national revenue is in a buoyant condition, the country should be told the truth. They should be told that industry, and private industry at that, is the only and ultimate source from which revenue can be found for Government expenditure and that unless economy is ruthlessly pursued, and "expedients and expedients" cease, the goose that lays the golden eggs will assuredly expire.

The net assets of the Group even on their balance sheet values now amount to over £26,000,000.

Since the amalgamation we have maintained the dividend on our Ordinary Stock at 6½ per cent and we now feel justified in modestly increasing the Ordinary Dividend to 7½ per cent.

Turning now to the Export Market, whilst our volume of sales measured by weight or length shows some contraction from the records achieved in 1949, the higher prices for metals and the like have increased the monetary value, and the direct exports of the B.I.C.C. Group for 1950 amounted to over £18,000,000.

### THE OUTLOOK

Sales for the early part of 1951 reached an exceptionally high level, but this involved drawing on the stocks of copper and certain other raw materials in our pipe-lines to execute orders accepted prior to any rationing. Subsequently, the full effect of the rationing of copper and the shortage of other materials has been increasingly felt, and our sales now, and as far as can at present be seen ahead, must of necessity be geared to the materials made available to us for production purposes. We do not believe, however, in accepting orders which we cannot fulfil, and we are endeavouring to be scrupulously fair to all our customers in the allocation of raw materials made available to us.

Any further deterioration in supplies will bring about a serious position. Any improvement would ensure us of a steady load factor for some time ahead.

# April Mine Returns

## Gold

### WEST AFRICA

**Amalgamated Banket.**—55,920 tons yielded 7,818 oz.; profit £26,440.  
**Ariston.**—27,600 tons yielded £107,322; profit £46,973.  
**Ashanti.**—19,500 tons yielded 15,769 oz.; net mines profit £83,380.  
**Bibiani.**—29,000 tons yielded 6,258 oz.; net mines profit £19,983.  
**Bremang.**—737,600 yd. from 4 dredges yielded 3,251 oz.  
**Gold Coast M.R.**—7,997 tons yielded 2,914 oz.; profit £9,551.  
**Konongo.**—3,720 tons yielded 2,385 oz.; profit £9,553.  
**Marlu.**—37,500 tons yielded 3,211 oz.; profit £2,626.  
**Nanwa.**—2,609 tons yielded 369 oz.

### INDIA

**Champion.**—14,240 tons yielded 6,342 oz.  
**Mysore.**—15,850 tons yielded 5,553 oz.  
**Nundydroog.**—17,200 tons yielded 4,622 oz.  
**Ooregum.**—11,000 tons yielded 3,327 oz., including 545 oz. from special clean-up.

### AUSTRALIA

**Boulder Pers.** (Mar. 28-April 24).—9,145 tons yielded 1,977 oz.  
**Central Norseman** (Mar. 28-April 24).—12,021 tons yielded 3,757 oz.  
**Central Victoria Dredging** (April 11-April 24).—60,940 tons yielded 303 oz.  
**Croesus Prop.** (Mar. 28-April 24).—7,303 tons yielded 1,519 oz.  
**Gold Mines of Kalgoorlie** (Mar. 28-April 24).—13,007 tons yielded 2,835 oz.  
**Harrierville (Tronoh).** (April 8-May 5).—188,500 cu. yd. dredged yielded 156 oz.  
**Morning Star** (April 11-May 8).—1,301 tons yielded 792 oz.  
**Kalgoorlie Enterprise** (Mar. 28-April 24).—4,381 tons yielded 1,065 oz.  
**Kalgurli Ore** (Mar. 28-April 24).—12,491 tons yielded 2,717 oz.  
**Lake View & Star** (Mar. 28-April 24).—48,261 tons ore and 34,829 tons retreated tailings yielded 11,054 oz.  
**New Coolgardie** (Mar. 28-April 24).—3,653 tons yielded 1,759 oz.  
**Sons of Gwalia** (Mar. 28-April 24).—7,708 tons, yielded 1,755 oz.  
**South Kalgurli.**—7,776 tons yielded 1,611 oz.

### MISCELLANEOUS

**Brit. Guiana Cons.**—81,652 cu. yd. dredged yielding 836 oz.  
**Bushtick.**—8,900 tons yielded 967 oz.; loss £1,797.  
**Cam & Motor.**—20,000 tons yielded £58,236; profit £23,662.  
**Frontino.**—9,847 tons yielded 5,367 oz.  
**Geita Gold.**—20,000 tons yielded 3,106 oz.  
**Martha** (April 3-April 21).—5,755 tons yielded 1,175 oz. gold, 10,178 oz. silver.  
**Motapa.**—23,300 tons yielded 2,330 oz.; profit £4,081.  
**Rezende.**—6,700 tons yielded £13,617 profit £1,484.  
**Rosterman.**—2,502 tons ore and 577 tons sorted waste yielded 799 oz.; loss £133.  
**Saudi Arabian.**—5,567 tons assayed 1,089 oz. and 840 tons reclaimed tailings assayed 0.280 oz.; profit £39,263.  
**St. John D'el Rey.**—30,800 tons; value of output £236,594.

## Tin

### MALAYA

**Ampat.**—69½ tons conc.  
**Batu Selangor.**—17½ tons conc.  
**Berjuntai.**—51 tons conc.  
**Ipoh.**—12½ tons.  
**Jelapang.**—27½ tons conc.  
**Kampung Lanjut.**—14½ tons conc.  
**Kamunting.**—281½ tons conc.  
**Kinta Kellas.**—15 tons.  
**K'nta Tin.**—31 tons.  
**Klang River.**—14 tons conc.  
**Kramat Tin.**—28 tons conc.  
**Kuala Kampar.**—215½ tons conc.  
**Kuchai.**—73½ tons conc.  
**Larut.**—91½ tons conc.  
**Lower Perak.**—76½ tons conc.  
**Malaysiam.**—6 tons.  
**Rantau.**—46 tons conc.  
**Rawang Conc.**—71 tons conc.

**Rawang Tin.**—83 tons conc.  
**Renong.**—89 tons.  
**Southern Kinta.**—325 tons conc.  
**Sungei Kinta.**—33½ tons.  
**Taiping.**—81½ tons conc.  
**Tambah.**—19½ tons conc.  
**Tanjong.**—77 tons.  
**Tongkah Harbour.**—41½ tons conc.

### NIGERIA

**Amalgamated Tin.**—264 tons tin conc. and 26 tons columbite.  
**Bisichi.**—54 tons tin and 17 tons columbite.  
**Ex-Lands Nigeria.**—45 tons conc.  
**Filani.**—3 tons.  
**Gold and Base Metal Mines.**—46 tons conc.  
**Jantar Nigeria.**—30 tons tin and 20 tons columbite.  
**Jos Tin.**—12 tons conc.  
**Kaduna Prop.**—4 tons.  
**Kaduna Synd.**—19 tons.  
**Keffi.**—12 tons conc.  
**Naraguta Extended.**—6½ tons.  
**Naraguta Karama.**—11½ tons.  
**Naraguta Tin.**—22½ tons tin and 4½ tons columbite.  
**Ribon Valley.**—3 tons conc.  
**Rukuba.**—1½ tons.  
**South Bukuru.**—5½ tons.  
**Tin Fields of Nigeria.**—2½ tons.  
**United Tin Areas.**—6 tons conc.

### MISCELLANEOUS

**Bangrin Tin.**—77½ tons.  
**Beralat Tin.**—5 tons tin conc. and 153 tons wolfram conc.  
**Geevor.**—4,599 tons ore, yielded 65 tons tin (65 per cent Sn.).  
**Siamese Tin.**—98½ tons.  
**South Crofty.**—1,846 tons yielded 25 tons.

## Coal & Miscellaneous Base Metals

**Amal. Collieries.**—550,307 tons coal.  
**Apex Mines.**—87,187 tons coal.  
**Broken Hill South** (April 8-May 5).—21,950 tons ore (assaying 71.0 per cent lead, 51.4 per cent zinc and 43.3 oz. silver), yielded 3,529 tons lead conc. and 4,521 tons zinc conc.  
**Dundee Coal.**—37,565 tons coal.  
**Natal Navigation Collieries.**—118,350 tons coal.  
**New Broken Hill** (April 1-28).—20,057 tons ore (assaying 8.0 per cent lead, 11.8 per cent zinc and 1.9 oz. silver), yielded 2,027 tons lead conc. and 4,197 tons zinc conc.  
**North Broken Hill** (April 8-May 5).—29,399 tons ore (assaying 13.2 per cent lead, 10.3 per cent zinc and 6.8 oz. silver), yielded 5,346 tons lead conc. and 5,081 tons zinc conc.  
**Rhodesia Broken Hill.**—1,900 tons zinc, 1,200 tons lead and 10 tons fused vanadium.  
**South African Coal Estates.**—150,093 tons coal.  
**Springbok Colliery.**—68,943 tons coal.  
**Vryheid Coronation.**—46,883 tons coal and 12,983 tons coke.  
**Wankie Colliery.**—168,932 tons coal sales and 7,793 tons coke sales.  
**Witbank Colliery.**—106,745 tons coal.  
**Zinc Corporation** (April 1-28).—35,503 tons ore (assaying 15.8 per cent lead, 12.9 per cent zinc and 3.3 oz. silver), yielded 7,317 tons lead conc. and 7,839 tons zinc conc.

## Topical News in Brief

**U.S. Machine Tool Output.**—Output of machine tools in the U.S. has increased by about 50 per cent since the outbreak of war in Korea, according to a survey by the National Industrial Conference Board, reports Reuter. Shipments, too, have increased, though they were noticeably behind orders.

**Greece to Further Geological Studies with E.C.A. Aid.**—E.C.A. funds have been earmarked in Greece for the establishment of a geological laboratory and for carrying out geological studies such as preparation of a geological map of Greece and gathering reports and documentation on the Greek mineral economy.

**Colombia Forms Ministry of Development.**—The Colombian Ministries of Commerce and Industry and of Mines and Petroleum were merged into the Ministry of Development as from April 1, 1951. The present Minister of Mines and Petroleum, Sr. Manuel Carvajal, has been appointed to the new post.

**British Plant for Victoria Power Station.**—The State Electricity Commission, Victoria, Australia, has just placed an order, worth £A.1,250,000, with Boving & Co., Ltd., London, for Eildon Power Station—associated with a large combined

irrigation and hydro-electric scheme on the Goulburn River—covering two vertical Francis water turbines, each rated 82,000 h.p., to drive alternators being supplied by the British Thomson-Houston Co. The turbines are believed to have the greatest output and the alternators to be the largest ever ordered in Britain.

**Egyptian Steel Works Projected.**—The establishment of a steel works with a capacity of 150,000 tons of steel p.a. is now being studied at the Egyptian Ministry of Commerce and Industry, states a Reuter report from Cairo. Six foreign firms (three German, one French, one Italian and one American) have already submitted tenders. The works, the location of which has not yet been decided upon, will draw its iron ore from the Aswan region and import coke. The construction of the new plant, including the installation of blast furnaces, is expected to take two years. Moreover, it is also intended to erect a smaller works equipped with electric furnaces. Egypt's annual steel consumption is now estimated at around 350,000 tons.

**Mineral Exploitation in Northern Ireland.**—The Minister of Commerce of Northern Ireland (Mr. W. V. McCleary), stated recently in the House of Commons that boring in the Coalisland District so far indicated that coal-bearing measures were not likely to be found above 4,000ft., to which depth one of the boreholes had already been sunk. It was common knowledge that coal in some quantity existed in the Ballycastle area, but the quantity remained an unknown factor. A new strike of a rather hopeful nature, but in a comparatively small way when considered in that connection, had recently been made and in order to assess its value, arrangements had been made for a number of shallow bores in that area.

References had also been made to a deposit of perlite in the Tardee area, County Antrim and it was anticipated that quarrying operations would begin in the near future.

**Development Charge on "Near-Ripe" Minerals.**—The Central Land Board announces that mineral undertakers should not, for the present, submit an application on Form D.1 for assessment of development charge for the winning and working, after June 30, 1951, of minerals which they believe to be near ripe.

Near-ripe minerals are, broadly, those in which a person engaged in mineral working on July 1, 1948, had an interest on that date, or was under binding contract to acquire an interest. No development charge is payable for any development of near-ripe minerals which takes place before June 30, 1951, and the draft regulations proposed under the Mineral Workings Bill, at present before Parliament, provide for charge incurred after that date to be set off against payments from the £300,000,000.

The Board propose to send a form (S.14) to those mineral undertakers whose mineral, appear to be near-ripe in accordance with the draft regulations. It will detail near-ripe minerals and include the Board's consent to their development during the period from July 1, 1951, to the date of the Board's determination of their development value.

These forms will be issued not later than June 1, 1951, and a mineral undertaker who has not received Form S.14 by that date, and who will be working minerals on and after July 1, 1951, should then apply for assessment of charge.

## DIVIDENDS

Butterley Company 5% (June 30)  
Consolidated Zinc Corporation 1s. 10½d. (July 2)  
Climax Rock Drill 3½%  
Globe and Phoenix Gold 2s. 6d. i (July 19)  
Gopeng Consolidated 15% i (June 7)  
Hong Kong Tin 10% i  
Imperial Smelting Corporation 6% (June 19)  
Killinghall Tin 15% i  
London Tin Corporation 5% i (June 26)  
Minerals Separation 30%  
Mountain Copper 25% (July 6)  
Messina (Transvaal) Development 6s. (June 28)  
Martha Gold 6½%  
New Broken Hill Consolidated 20% (July 2)  
Pengkalan Pref. Ord. and Ord. 20% i (June 14)  
Powell Duffryn, 4½% Cum. Pref. Stock 2½% (July 2)  
Rantau Tin 25% i  
Rio Tinto Company Ord. 12½% •  
Rhodesia Copper Refineries 5%  
Rhokana Corporation 5½%  
Selection Trust 2s. 3d.  
Tekka-Taiping 2½% i (June 30)  
Tweefontein Colliery 30%  
United British Oilfields of Trinidad 12½% •  
Weardale Lead 5% i  
Willoughby's Consolidated 6½%  
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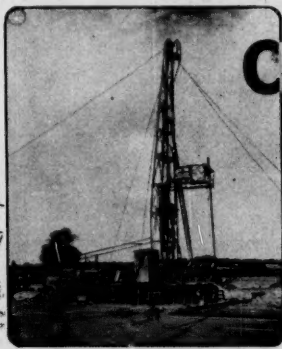


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